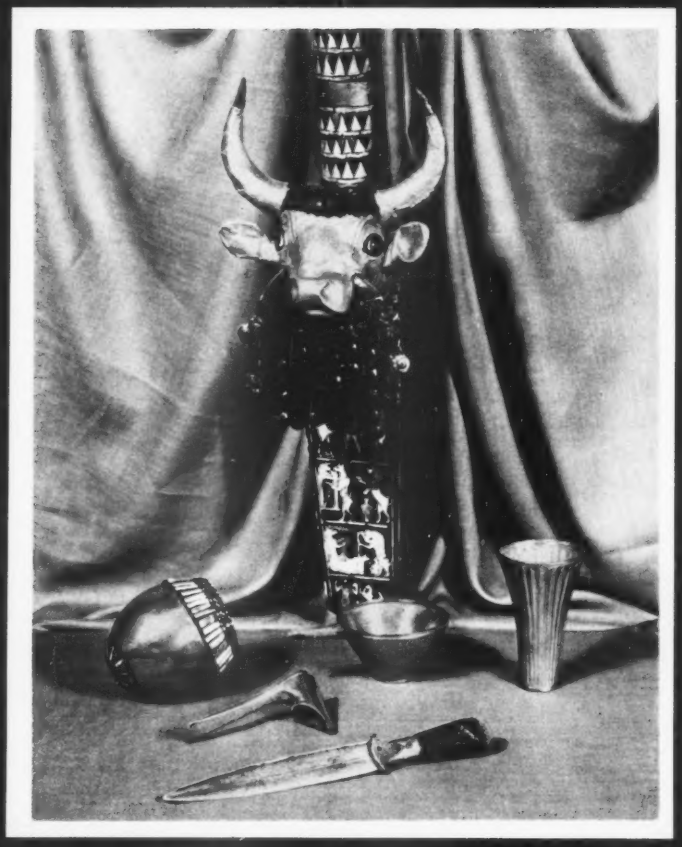
EXPEDITION

THE BULLETIN OF THE UNIVERSITY MUSEUM
OF THE UNIVERSITY OF PENNSYLVANIA



Fall 1960 VOLUME 3 NUMBER 1 ONE DOLLAR

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(Cover) Bull's head of gold and lapis lazuli and inlaid plaque from the sound box of a lyre, and gold vessels and weapons — all found during the excavation of the Royal Cemetery at Ur by Sir Leonard Woolley.
(Color postcards available.)

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EXPEDITION

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Triumphal Way leading north through the Roman city of Leptis. The barely visible arch in the distance is the half-way point between the entrance to the city and the sea.

FINDING *A Phoenician Colony*

Part 1: THE SEARCH

By BRANDON BARRINGER

The hunt started nearly two years ago when the Government of Tunisia asked the University Museum to investigate the possibilities of sending an expedition there. At the same time, Mrs. Barringer and I had been asked by my brother, John Paul Barringer, U. S. Counsellor of Embassy in Libya to visit him. Dr. Rainey with Mr. and Mrs. John Dimick went to Tunisia and we agreed to see what might be found next door in Libya.

The object, as in the other University Museum Expeditions was, hopefully, to add a chapter, or at least a paragraph to prehistory rather than to cross t's or dot i's. The discoveries of the Phrygian kingdom at Gordion, the hitherto unknown Mannae at Hasanlu, and the whole rise and fall of the Maya capital at Tikal obviously could not be rivalled, but very little is known of the Phoenicians, so a contribution seemed possible. "Delenda est Carthago," repeated the elder Cato until Rome succeeded in razing that great city to the ground. Leptis, on the other hand, had sought Rome's protection. Might we not resurrect the western Phoenician civilization by excavating an undestroyed sister of Carthage?

The authorities are still the Bible, the Greek Herodotus (480-425 B.C.), and the Sicilian Diodorus (first century B.C.) The latter gives the story of Carthage and its colonies. The Phoenicians, who are credited with the invention of the first alphabet, have left us little but dedicatory and funerary inscriptions. They had libraries —the Romans specifically destroyed the one at Carthage—but not a book has survived to give us, in their own words, their history, their literature, or their religious beliefs.

The country called by the Greeks, Phoenicia, possibly meaning "palm tree land," occupies the Mediterranean shore of present-day Lebanon and is 300 miles long by only 7 to 30 miles wide! This narrow passage is part of the principal land route between Asia and Africa and has been fought over for 4,000 years of history and doubtless for millennia before that. Geography practically forced its inhabitants to form individual city states—Tyre, Sidon, Arvad, Byblus, Ugarit, and so forth—and to make part of their living from the sea.

According to their reported accounts, borne out by archaeological evidence, the Phoenicians moved in as part of the westward migration of Semitic peoples of which Abraham's move from Ur was a traditional part (modern Arabic still has Phoenician words). How soon they took to the sea and when they started to colonize are matters of considerable debate. The classical authors put the founding of Gades (Cadiz) in Spain and Utica, west of Carthage in Tunisia, in the twelfth century B.C. On the other hand, no archaeological evidence of Western Mediterranean colonies older than the eighth century B.C. has apparently been found.

I had been under the impression that Libya contained "tells" (mounds representing successive layers of past cities such as are found throughout the Middle East) and hoped to find one with Punic (western Phoenician) potsherds on its surface. The first step, therefore, was to find what their pottery looked like. We could find nothing in Rome, but the Carthaginians once held Sardinia. A flight to its capital Cagliari, and the kindness of Professor Pesce and Dr. Barreca who are in charge of its Antiquities Department and have excavated several Carthaginian structures, provided the ammunition that seemed necessary. In Libya, however, we found that there were no tells. Civilization buries itself there as elsewhere but (possibly owing to the offshore winds) at a far slower rate than the foot a century which I call a very crude yardstick for Iraq. The ground around the Arch of Augustus in Tripoli, the capital, has risen only 3 feet or less than 2 inches a century. The alternative, then, was to look under the great Roman ruins which had been built on the preceding Punic cities of Sabratha, Oea (modern Tripoli), and Lepcis (Roman Leptis) Magna. Ancient Tripoli got its name from these three cities (Tri-Polis).

At Sabratha, we saw the sounding which Miss Dorothy Kenyon had made, disclosing a neo-Punic house, but no place to do any worthwhile excavation without disturbing the reconstructed city of Roman days. Tripoli was out of the question because of modern buildings. Leptis Magna, on the Mediterranean shore, 80 miles to the east, seemed the last chance. A square mile of this great Roman city, which had been covered by sand and, therefore, saved from all but a few stone robbers, has been magnificently rebuilt the way its most famous son, the Emperor Septimius Severus (A.D. 146-211) left it. None of the grandeur that was Imperial Rome is left to the imagination.

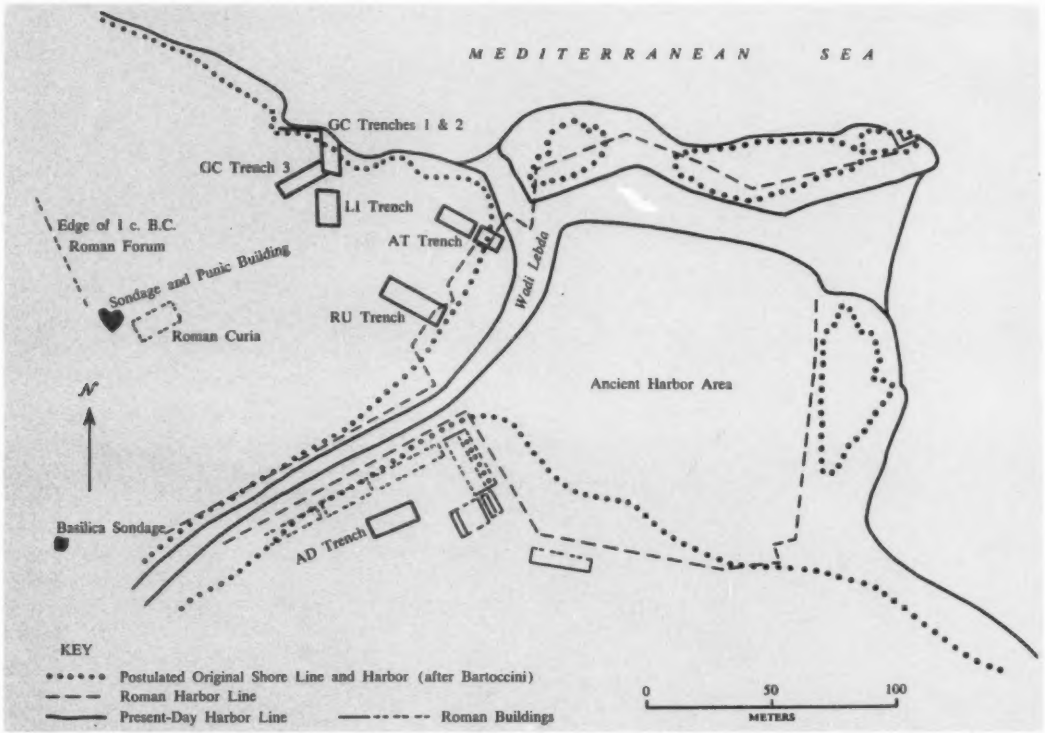
After we had walked through the city on the way to the huge artificial Roman port at the mouth of the Wadi Lebda, we came to the three acres of bare ground forming a 20-foot high peninsula between the stream bed and the Mediterranean. This peninsula is the west side of the original harbor. Here, it seemed certain, the Phoenicians had first beached their ships, camped, and eventually built; and there was no reconstruction to hinder excavation! Here, I felt, was ground that *must* be dug.

I want to emphasize that this was no "original discovery." The few writers on Leptis have pointed out that the first settlement was probably there, but neither the Italians nor the archaeologists of the British School at Rome who succeeded them, had been enough interested in this particular problem to investigate it. The latter did find Phoenician graves under the Roman theater, so there was no doubt that there had been a settlement somewhere. The facts that many of the Roman monuments are bilingual, that Septimius himself "spoke with a heavy African accent" 300 years after the fall of Carthage, and that his sister, granddaughter of a colonial governor, "had no Latin," made it clear that the Punic tradition was a strong one. On the other hand, its history might have been like that of French Quebec which increased forty times in size in the 200 years after it fell to the English while also keeping its original language. My own guess was that the location, which made it a great Roman city, couldn't have failed to make it an important Phoenician one.

Beginning work in the Goodchild Trench. In the background is the village of Homs.

The Roman theater at Leptis Magna. British archaeologists have found Punic graves in the stage area.

Professor Ernesto Vergara Caffarelli of the Department of Antiquities of Tripolitania, who had guided us, was most encouraging about the chances of our being allowed to go ahead, and the Wali (Governor) of Tripolitania proved much interested and assured me there would be no difficulty. We therefore returned to Philadelphia in April, 1959, with high hopes. The Expeditions Committee of the University Museum, on the advice of Dr. Rainey and Dr. Young, head of the Mediterranean Section, approved. The indispensable professional archaeologist was found in Theresa Howard Carter of the staff of that Section who was selected by Dr. Rainey and agreed to take charge of the dig. She had been one of the group that helped us dig Shofer's cave near Kutztown in 1951 in an unsuccessful attempt to find evidences of early man in Pennsylvania and we were delighted with the selection. Formal permission to dig was asked of the Libyan Department of Antiquities, and Dr. Aneizi, Governor of the National Bank of Libya and the country's leading scholar, promised his support. We decided to arrive about the end of Ramadan, the four-week Moslem fast during which it is hard to transact business. This was estimated to end about March 25th.



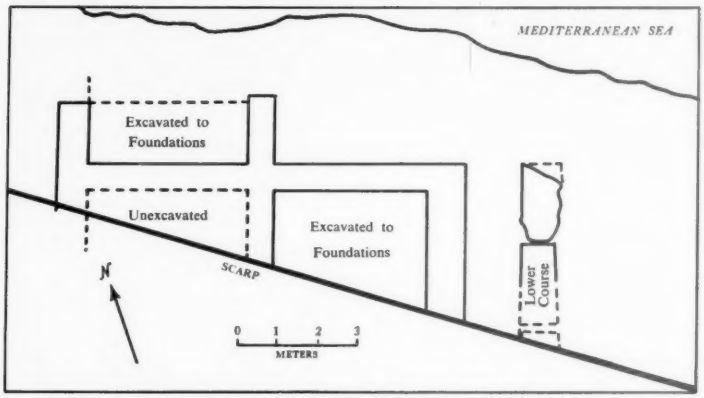
We had not allowed for the three-day feast of Bairam which follows it and which is no less difficult.

All seemed arranged and Mrs. Barringer, who was to serve as interpreter in Italian, had already left with our eleven-year-old daughter Lisa. Like her sister Carla the year before, she was "going along for the ride." Then a cable came advising that the expedition be postponed as Professor Caffarelli was ill in Italy. Our disappointment can be imagined. Fortunately, at Mrs. Carter's suggestion, Mrs. Barringer called on Professor Ward Perkins, Director of the British School in Rome. He assured her that Signor Francesco Russo, superintendent at Leptis, could take charge of the workmen for us, so we flew to Tripoli.

We called on Mr. Bubakker Zlitny, the head of the Department of Antiquities of Tripolitania. He had never seen the University Museum request which seems to have been "spurlos versankt," if I may use a World War I idiom. However, we were most fortunate in finding Professor Richard Goodchild, former head of the Department for Libya and, at that time, for Cyrenaica, who successfully interceded for us and secured oral permission for us to excavate.

Next day, March 27th, we motored to Leptis and found that arrangements had been made for us to be put up at the local expedition building, from which Mrs. Barringer could get supplies at Homs, a two-mile bicycle ride away. Professor Goodchild accompanied us and helped us pick out the first site which we called the Goodchild cut (GC on the map). This was located along 60 feet of the Mediterranean shore with a 10-foot high bank. Native rock nearly reached the surface at one end, so it seemed certain we could get all the stratification down to the original soil.

Two days later, we settled in and arranged for the hiring of ten workmen and two housemen. Excavation started on March 30th with the "help" of a Decauville Railway. These used to be a great archaeological luxury but, while a car was filled every five minutes and dumped in the sea the first morning, the rate gradually slowed to one every ten minutes and then fifteen as the enthusiasm lagged and the embankment out to sea got longer. "Language difficulty" was illustrated when I tried to explain to the foreman the rate of movement on my wristwatch and was understood to have asked that work continue through the two-hour siesta and then stop for the day! We ran the base line for a survey of the peninsula that afternoon.



Plan of Roman foundation in the Goodchild Trench

An inside corner of the foundation

The next day was a high point. A structure gradually showed up in the face of the cut. At an angle between the wall and a buttress lay a Punic lamp; and Greek potsherds, such as the Phoenicians used, lay on the bottom under Roman pottery. The dry stone masonry was rough and unlike the usual Roman workmanship. Could we have found a *pre*-Phoenician, Bronze Age, building? Disillusionment came gradually over the next week or ten days. The structure had no doors; it had no floor. It covered the whole face of the cut and was obviously, as Signor Russo suspected on the fourth day, a Roman foundation. The pottery evidently came from a dump that had been used as filling.

In clearing it, a Byzantine (about A.D. 500) child's sarcophogus was disclosed 3½ feet below the surface. Like all the burials we later found, the body was laid on the ground with flat stones forming the sides, ends, and lid of a rude coffin. This was the first of several—clearly a graveyard.

Based on the experience of these two days, we decided we could handle another ten workmen and opened a new cut named Russo (RU) for our superintendent, on the Wadi side of the peninsula opposite the Goodchild one. Within a day, this bottomed on an impenetrable, 2-foot thick, Severan cement pavement and we drove inland along the top of it into the 12-foot high bank of the Wadi. Across the pavement lay two walls, 5 feet apart, one of them with a fallen Roman column as a doorstep. A Byzantine shepherd had re-used it and other stones from Roman structures to make a sheepfold. At a higher level was his similarly constructed watering trough. He had even laboriously cut through the pavement to sink a well.

As the narrow face now available in the Goodchild cut could not employ all the men, we started a 30 by 30 foot sounding (which we called Lisa) on the high ground behind it. At a depth of little over a foot, we encountered several sarcophagi built like the Byzantine ones but with skeletons in better condition and lying on their sides with the heads facing southeast. We then penetrated ten feet of sterile sand.

On April 10th the site was visited by 350 British tourists from an archaeological cruise ship, led by Sir Mortimer Wheeler and Professor Ward Perkins, who were very helpful to us. The next day we started home, leaving Mrs. Carter to continue the exploration. Our hopes were still high. The Goodchild cut was about to break through the foundation and we should get below the Roman layer in a few days. The Russo cut must shortly reach the end of the Severan pavement and enable us to go down there, and the Lisa sounding had only five feet to go to reach the original ground level.

On my return to Philadelphia, I found the April to July 1960, *Bulletin of the Massachusetts Archaeological Society*. It contained an article by Rhodes W. Fairbridge, Professor of Geology of Columbia, who has specialized on Carbon-14 dating of recent sea levels. If his figures are right, the ocean was up to 10 feet higher from 600 to 100 B.C. If this is so, and if the coast of Libya hasn't independently risen or fallen, our peninsula could have been a mere reef washed over by any storm when the Phoenicians came. The obvious place for them to have settled suddenly looked far from obvious! During the Roman and Byzantine periods, the level was up to 10 feet lower than at present which would account for all the structures of that period and might well indicate we would find sterile soil underneath them. The outlook was suddenly gloomy. A welcome contribution to the excavation by the James S. and Marvelle W. Adams Foundation of Greenwich, Conn., which would enable us to extend the exploration, was the only bright spot.

Part 2:

THE DISCOVERY

By THERESA HOWARD CARTER

The very afternoon of the Barringers' departure two of our three high hopes were shattered. The Lisa Sounding revealed a pair of enormous marble-faced vats occupying the entire floor area of our cut. Since there were other similar structures in previously dug fourth and fifth century Roman bath complexes at Leptis, we had no difficulty in identifying them. Then to complete our discouragement the Goodchild Trench in the succeeding hour reached the cover slabs of a monumental Roman drain, obviously a part of the same unit. We judged the drain had been designed to carry off a substantial amount of water, as a visiting Royal Marine volunteered to explore it for us and had no trouble in crawling through some thirty feet of its length. Subsequent investigations proved it to rest on sterile soil.

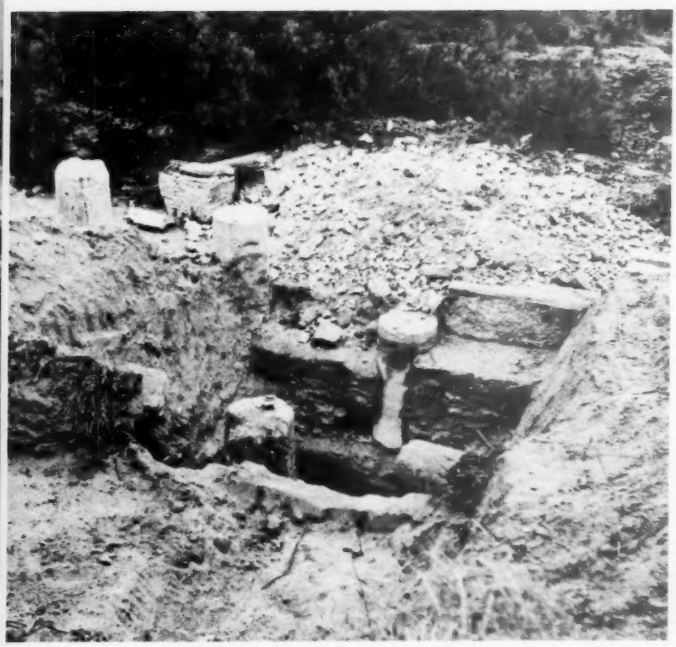
Our last attempt from the sea front trench was to run a diagonal offshoot toward the southwest seeking to avoid further Roman bath remains. This too held disappointment from the Phoenician point of view since our workmen laid bare at a mere five-foot depth a massive well-built Roman terrace. We shortly realized that the terrace derived support from our crude but mysterious floorless, doorless building. Thus the enigma was solved; our walls had been built as protection against the sea and the interior cells solidly packed with a mixed batch of material from earlier dumps—handsome black glazed Greek sherds, a Punic lamp, and fragments of shattered Roman wine amphorae.

The area of these particular Roman installations had in Byzantine times and perhaps later served as a cemetery. A total of twenty-four graves were excavated—the majority of the already mentioned slab variety. We were relatively sure of the Christian identification since a cross was inscribed on the end slab of the third grave. In no instance was there any trace of an object buried with a skeleton. In fact the *only* curious feature of all the graves dug was the very first one found (presumably undisturbed), in which the skeleton of an adolescent possessed just one arm and one leg, although every other tiny bone was present.

Undaunted by a lack of success in our search for the Phoenician settlement, we sank a fourth trench near the narrowing neck of the peninsula

Digging the Roman drain down to virgin soil. The neatly cut cover slabs have been removed and lean against the scarp.

Terrace or sea-front boulevard which rested on the elaborate foundations exposed in the Goodchild Trench



A section of the harbor installations of the Roman periods. The Neronian column rests on two stone blocks, about three feet above the water table. The Severan constructions are above the Neronian.

The Early Punic construction inside the Forum sondage. The neat ledge marks the level of the dirt floor; the walls were intact six feet above and three feet below the ledge.

Stones are removed by manpower alone when that is physically possible

Raising the bucket of dirt from the Forum sondage. The articulate building in the right background is the Roman Curia.

and generally parallel to the Russo cut. Anyone established in this position would have had an immediate view of and access to both the Mediterranean and the Wadi. Italian archaeologists had schematically reconstructed harbors of two Roman periods. The supposed contours of the original land features or those extant in Phoenician times were also estimated by Prof. Bartoccini et al. Thus, we reasoned, our period should be definable between the Neronian level and the water table. In spite of the appellation Athos, after a reputedly "lucky" spotted dog of our acquaintance, this trench too was fated to disappoint. Under a bit of scrappy post-Roman occupation the inland end produced rocky virgin soil. In our Wadi check-pit we were able to break through both the Severan and Neronian pavements, only to reach brackish water less than two feet beneath. Even had there been a Phoenician settlement in this particular area of Leptis, a layer at most two feet thick did not leave us much hope of making a substantial discovery. We began to suspect that the very thorough Roman builders had literally scraped away all shreds of earlier occupations before laying down their foundations.

This all added up to another abandonment, and the time had come to review our position. We still hesitated to give up the port area, and in truth shrank from the problems of attacking the Phoenician city through the major part of the elegant Roman city; any of the Roman structures so disturbed would in due course have to be replaced by us. We soon determined that the only possible remaining site in the harbor vicinity lay on the high ground across the wadi, behind the Temple of Jove and two semi-subterranean stone houses where British soldiers had lived for some time undetected by their enemies during World War II.

We met with a variety of complications in the establishment of this trench, named Adams after the generous donor to our Leptis expedition fund. It meant commuting half a mile between the working trenches on the peninsula to the new location on the south port side, and this through an all but inpenetrable "jungle" lining the present wadi bed. The tales of the Libyans citing the twelve-foot red serpents said to inhabit this area were harrowing. Local lore held that if one drank a bottle of native wine before an encounter, the man-biting serpent would die, but the snake-bitten man would survive unharmed! We found it considerably more efficient to have someone with a stick walk ahead shouting, "Attenzione 'snik'!"

The workmen dug furiously and at a depth of eleven feet two piles of huge jumbled stone blocks in either corner of the trench began to have the unmistakable outlines of hulking buildings. There was again no room to operate. We were pledged not to destroy them and we had not enough time or money at our disposal to excavate them to the bottom, and then hope for Phoenician remains beneath. We were forced to seek elsewhere, yet we had proved nothing regarding the existence or lack of pre-Roman installations in the south harbor area.

Only the Russo Trench was left in operation and it represented a continual frustration. By employing five men there we nearly maintained a balance; four would dig the entire day to remove sand which had fallen or drifted in the previous night. The fifth workman brewed the tea required by his companions to keep up their stamina. One very fortunate afternoon we were able to dig for a bit at the end of the Roman harbor pavement. However the sand fell in such quantities during the night that our experience was never repeated. Thus nature reclaimed her own and our last hopes for a large trench were shattered.

Half the workmen had been laid off and five digging days remained. We reasoned that there was little chance of recovering a mass of Phoenician material, but our assignment was reconnaissance, and locate the settlement we must.

One sondage was a square pit near the Severan Basilica between the Wadi Lebda and the oldest part of the Roman city. It was dug to a depth of more than eleven feet and nothing pre-dating Roman glass and pottery was found, before striking the water table.

Finally, we knew the British excavators had found Punic graves at a considerable depth below the Roman Theater, inland and west about one-half mile from the harbor peninsula. Our last guess was that the actual town might lie somewhere between. We found a likely spot between the Roman Curia and the First Century Forum where two men could easily roll aside the fallen columns and break through the pavement just beyond the Forum floor. The hole was very small indeed and soon only one man was digging while the other raised and lowered the bucket.

Suddenly we were down four feet and intersecting walls emerged; it was immediately apparent they were not of Roman cut stone masonry. The following day, excavated further and cleaned, it was obvious that the construction was typical of Early Punic walls in the Western

(Left) Current excavations along the north—south wall show that it continues in both directions. Ten more feet of its length have been exposed by tunneling under the Roman concrete. (Right) The area of future operations, beneath which must lie other buildings of the Phoenician town. Our sondage (not shown) is just to the left and front of this picture.

Mediterranean. When the corner had been exposed to a height of six feet, we reached a ledge, identified as the floor level. The wall continued down for three more feet beneath the floor and the Corinthian pottery used to date the building was found there.

Naturally we enlarged the area, even though it was necessary to move our dump. At this point our dig was over and I was scheduled to leave Leptis, but this was hardly the moment to break away. Our two workmen agreed to clear more of the walls while I went off to Tripoli, performed the official duties, shipped the luggage, and made appropriate farewells. I was able to taxi back for one last inspection and day of digging. By then we had exposed twelve feet in length of an Early Punic wall of about 650 to 600 B.C. The intersecting wall was a well-finished and clearly intentional pier running perpendicularly east-west about five feet. In some places the wall was sealed under the Forum level and two additional layers of Roman concrete. The size and plan of the structure indicate a public building, but we really must have more particulars. Western Phoenician architecture, except of a funereal nature, is relatively unknown, especially that of a comparably early date.

At the present time further excavation continues along the lines of our walls, both inside and outside, in the hope of obtaining the total dimensions of the building and details of the plan. If the building runs further north from the Old Forum toward the sea, we expect other major buildings of the same period. This fortunately is an area more or less uncluttered by colossal Roman buildings. In another season it should be possible to expose an important section of the original settlement on the fringe of the Republican Roman city. Such a project would add salient information to our limited knowledge of Phoenician colonization in the Western Mediterranean.

EXPEDITION NEWS

SHIPWRECKS

The return of Mr. George Bass with details of his summer work on the wrecked ship off Finike in Turkey is eagerly awaited. His reports tell of quantities of ingots and bronze tools and weapons recovered. Meanwhile a piece of one ingot has been analyzed at the Museum and shown to be pure copper. A sample from a mass of white powder found in the wreck was analyzed in Turkey and identified as tin oxide. The cargo thus seems to have included both of the ingredients necessary for making bronze. Many of the ingots found were fragmentary, which was puzzling; the presence of the tin now suggests that our ship may have been a travelling foundry carrying scrap copper to be made on order into bronze utensils! Cleaning and identification may show some of the tools to have been suitable for foundry work. Some of the ribs and planking of the ship's hull were preserved, evidently fastened together with wooden pegs—our first evidence on Bronze Age shipbuilding. Amulets and a scarab of faience and ivory may be dateable, as also a fine cylinder seal, perhaps Hittite. For the present, we must date the wreck thirteenth to fifteenth century B.C.; identification of the seal and the scarab may pinpoint more closely the time of the ship's voyage.

EL-JIB, JORDAN

The Museum's fourth season at el-Jib, directed by Dr. James B. Pritchard, which lasted from June 15th through July 30th, has thrown new light on the technique of wine making at Gibeon during the seventh century B.C. The wine industry was a major factor in the city's economy. To date sixty-six wine cellars, cut in the solid rock, have been uncovered; knowledge of the technology has come from the discovery of wine presses, a plastered fermenting tank, and rock-cut basins for settling the wine. A preliminary report of these discoveries has already appeared in the *Illustrated London News* for September 10th.

An unexpected find was that of the Bronze Age necropolis. After staff members of the expedition had looked for it for three seasons it was finally discovered by an Arab woman of el-Jib (see account of discovery in *Time*, August 8th). Twelve of the tombs were cleared of an unusual collection of fine pottery and other artifacts, which document the daily life of Gibeon from about 2000 to 1200 B.C. Many more of these tombs remain to be excavated. At the very end of the season Diana Kirkbride came upon a large Iron Age building at the northwest of the mound. It promises to be the largest and most important public building yet found at el-Jib and will require the better part of a season for full excavation.

HASANLU, IRAN

The major project of the 1960 season was the excavation of a large burned building belonging to the ninth, or possibly the eighth, century B.C. This building, which formed part of a fortified citadel, has walls still standing about three to four meters high and was originally of two stories. It consists of a front section made up of two long narrow rooms with small rooms at either end, and a large courtyard. The entrance to the building was through a portico consisting of three pairs of wooden columns set in mud benches. In front of the doorway was a paved courtyard, and before the central pair of columns was a rectangular stone platform on which stood a sandstone stela. This suggests the possibility that the building may have had a religious function. Inside the first room was a long brick bench with a second stela standing on it. Neither stela was decorated. The second narrow room contained two small brick benches and a central hearth. Late in its history, a kitchen room had been built into one end of it. To the west a doorway led to the stairway to the second floor; at the rear a doorway led into the big court. The ceiling was held up by two rows of wooden columns set on stone bases. In the center toward the back stood a brick platform; along the side walls ran a mud bench, and on either side of the doorway stood a mud bench and a stone pavement.

The western wall had collapsed across the area during the fire, burying the burned wooden columns and forty-four individuals: young children, girls, and warriors. Some were in the courtyard, some in the doorway and on the floor of the narrow room. All wore bronze pins and bracelets and bead necklaces and some carried cylinder seals with Assyrian scenes of a hero shooting a winged animal. There were also fifty-eight bronze lion pins with iron points, held to the clothing with short bronze chains; in one case the person wore several gold disc pendants. Among the interesting objects found in the ruins were an incense holder of "Egyptian Blue," a kind of antique glass; two wooden plaques carved with figures of horses, one with a rider; a fine bronze plaque showing a hero battling two animals; and a small drinking cup in the form of a horse's head.

From a well, one and a half meters in diameter, sunk in the center of the tepe to a depth of eighteen meters below the surface of the tepe, a pottery sequence dating back to the fourth millennium B.C. was obtained.

TIKAL, GUATEMALA

The summer field season, under the supervision of Dr. William R. Coe, was devoted to further work on the North Acropolis and house mounds. With the assistance of several students, a number of houses, with associated domestic refuse, were excavated, providing much information on one of the many parts of the site occupied by the common people. William Haviland will continue this interesting and important aspect of Tikal archaeology during the coming winter. Work on the North Acropolis continued that of previous seasons, developing the complicated sequence of plaster floors and temples, but leaving tombs and other delicate features until the winter digging season.

A PAIR OF TWINS

By DAVID CROWNOVER

Who's cutting leaves there? Chop! Chop!
Me, only me. Chop! Chop!
What are you cutting leaves for? Chop! Chop!
To build me a house. Chop! Chop!
What do you want a house for? Chop! Chop!
To get me a wife. Chop! Chop!
What do you want a wife for? Chop! Chop!
To have me a child. Chop! Chop!
What do you want a child for? Chop! Chop!
Children make your life. Chop! Chop!

This poem translated from the Nigerian language group by Roger Wescott propounds a simple truth: it is a good thing to have children. Twins in particular have a religious significance. One of the cults of the Yoruba in Nigeria and Dahomey in West Africa is that of the *ibeji* (twins). The Yoruba differ from most West African tribes in welcoming the birth of twins and not considering them a moral calamity. Whenever one or both of the twins die, small twin figures such as the ones pictured here are carved in order to avert further visitations of death on the family. The figures are kept in family shrines and are ceremonially fed and anointed with oils on certain days to insure that the spirits of the dead twin or twins may remain with the tribe. These ceremonies are carried on sometimes as long as a hundred years after the death. The small figures are carved in accordance with the ancient traditions of the Yoruba and vary only in the individuality of the sculptor's presentation.

The two small figures shown here are not an exact pair. They were collected in Nigeria in 1958 by William Fagg of The British Museum who presented them to The University Museum in memory of Webster Plass.

The stylized crown-like coiffure and the tubular treatment of the breasts suggest that the male was carved by Abogunde or one of his school in the early years of this century. Tribal striations on the face indicate the family tree of the twin represented. The power of this small sculpture—for it is only ten inches high—results from the plastic explosion of a columnar conception. Liberties have been taken in the proportion of the legs and the largeness of the feet, which grow out of the small disc of the base in the same way that the hands and thighs merge.

The female was purchased at Oyo but comes probably from Ogbomosho. Here the crested nature of the coiffure is recapitulated in the posing of the arms and in the general open-legged stance of the figure. The blue and red trade beads around the arm indicate membership in the Shango Society.

These small idealized portraits, albeit dolls, are great additions to the African collection of the Museum since we did not previously have this type represented. In their own right they stand as works of art, and in the greater sense, in the words of the poet, "What do you want a child for? Children make your life."

An Archaeologist's Sketchbook

By ALFRED BENDINER

When Fro Rainey and his staff asked my wife and me to go to Tikal and make an architectural survey of the Acropolis, they didn't specify that we work solid from six A.M. to nine P.M. like regular archaeologists, ethnologists, anthropologists, grave diggers, and sherd polishers.

So I found some spare time on Saturday afternoons and Sundays to doodle.

Here are a few drawings of what goes on in and around and about the great archaeologists' Paradise in the Peten.

You too can be an archaeologist or even an interested spectator, bird, flora, and fauna fancier, herpatologist, botanist, camera fiend, or just plain snooper.

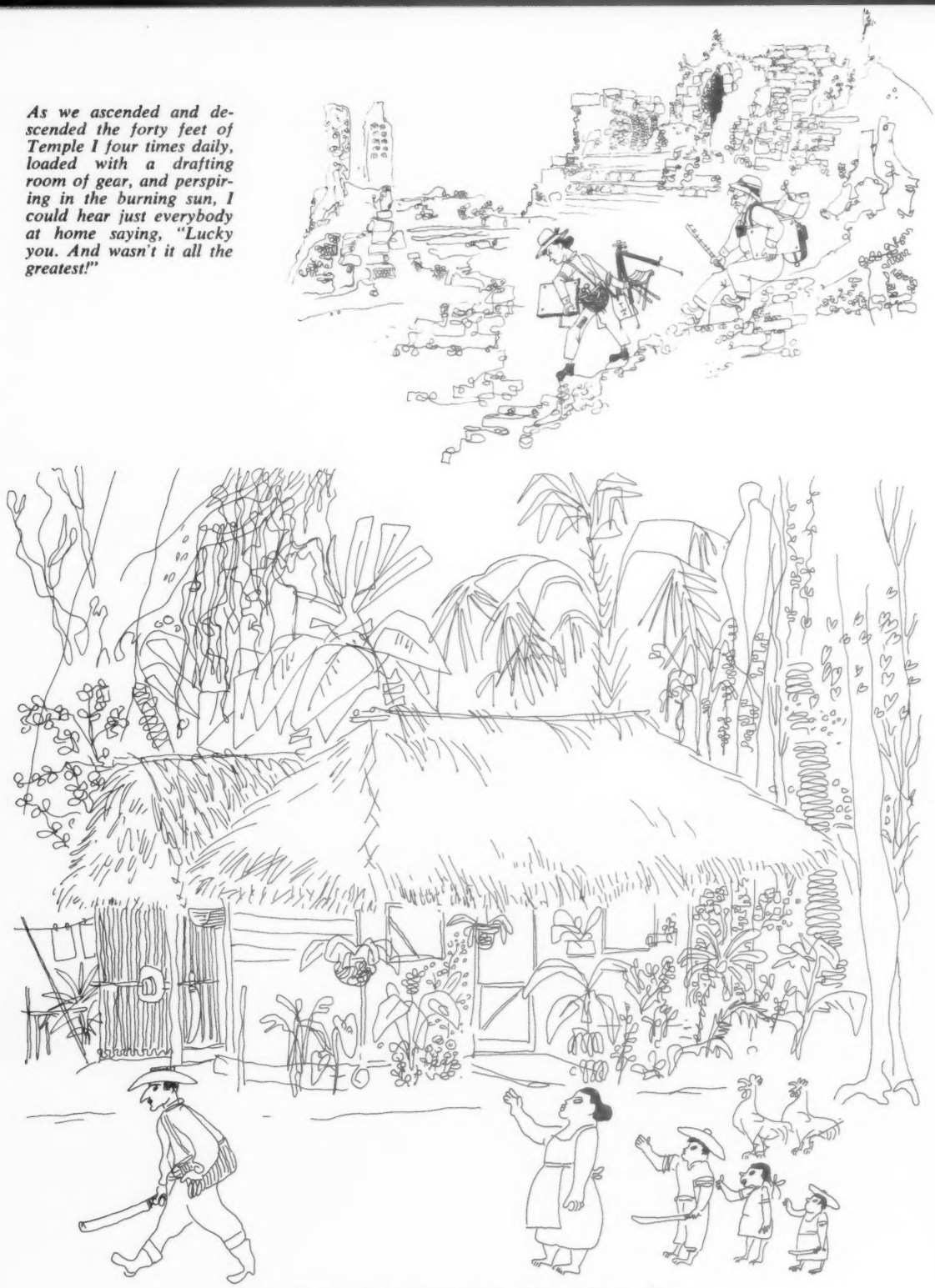
The plane comes in from Guatemala City on Monday, Wednesday, Friday, and Sunday, and you can stay over as long as you behave like a tourist. Take along some aralen, entero vioformo, bird-watching glasses, cameras and film, whiskey against the cold nights.

The whole rain forest is endlessly fascinating and you may acquire a sunburn, pick wild orchids, spot a quetzal or at least a toucan, watch the monkeys and try and figure out what the stelae are saying.

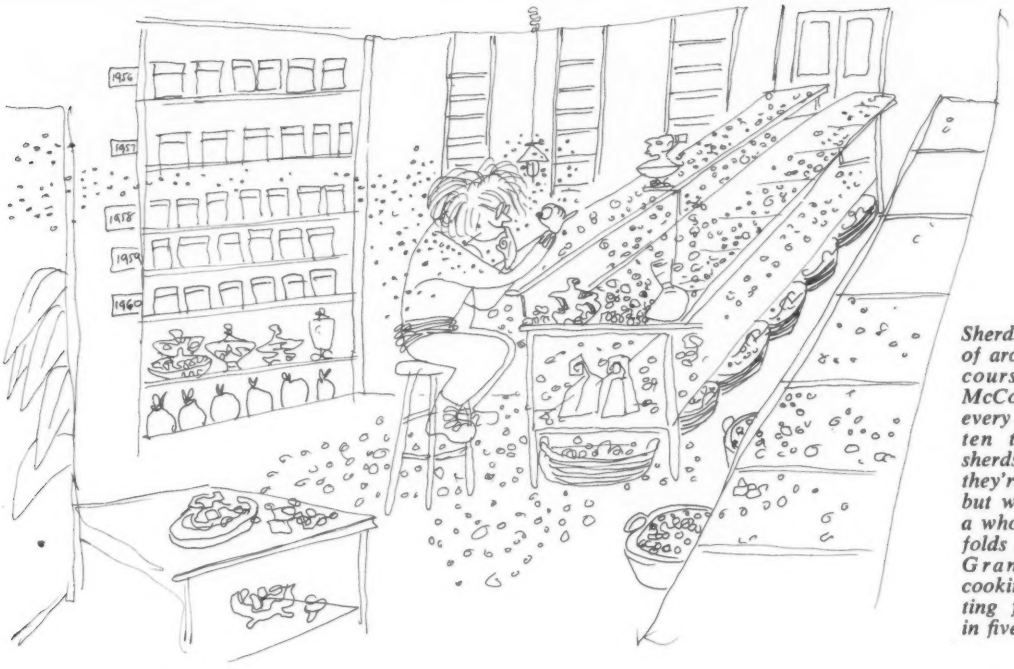
Don't feed or annoy the archaeologists, who are deep, serious M.A.'s and Ph.D.'s developing a frown trying to figure out what made a bunch of midget Indians act civilized or maybe better. It's all still a wide open problem lacking a wordy solution and if you can learn the Morse code you can date a monument as quickly as the "beards." So come, oh come, to Tikal and take home a genuine old obsidian carving tool recently faked in Guatemala City. But keep your hands off the real museum objects. They search baggage at the border. Except maybe you can sneak out an old bone, if it doesn't crumble.

Alfred Bendiner

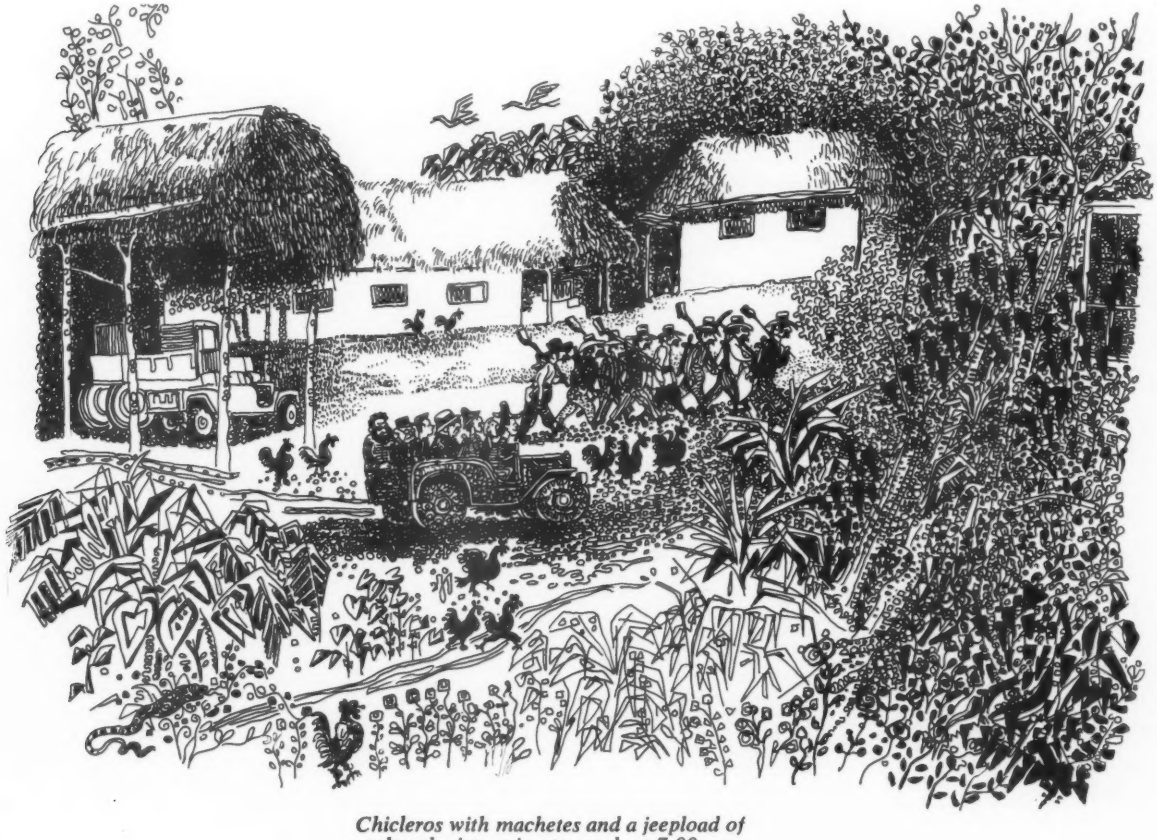
As we ascended and descended the forty feet of Temple I four times daily, loaded with a drafting room of gear, and perspiring in the burning sun, I could hear just everybody at home saying, "Lucky you. And wasn't it all the greatest!"



Rudy, our personal stake pounder and rod man, takes his leave of home and family to go to his daily task.

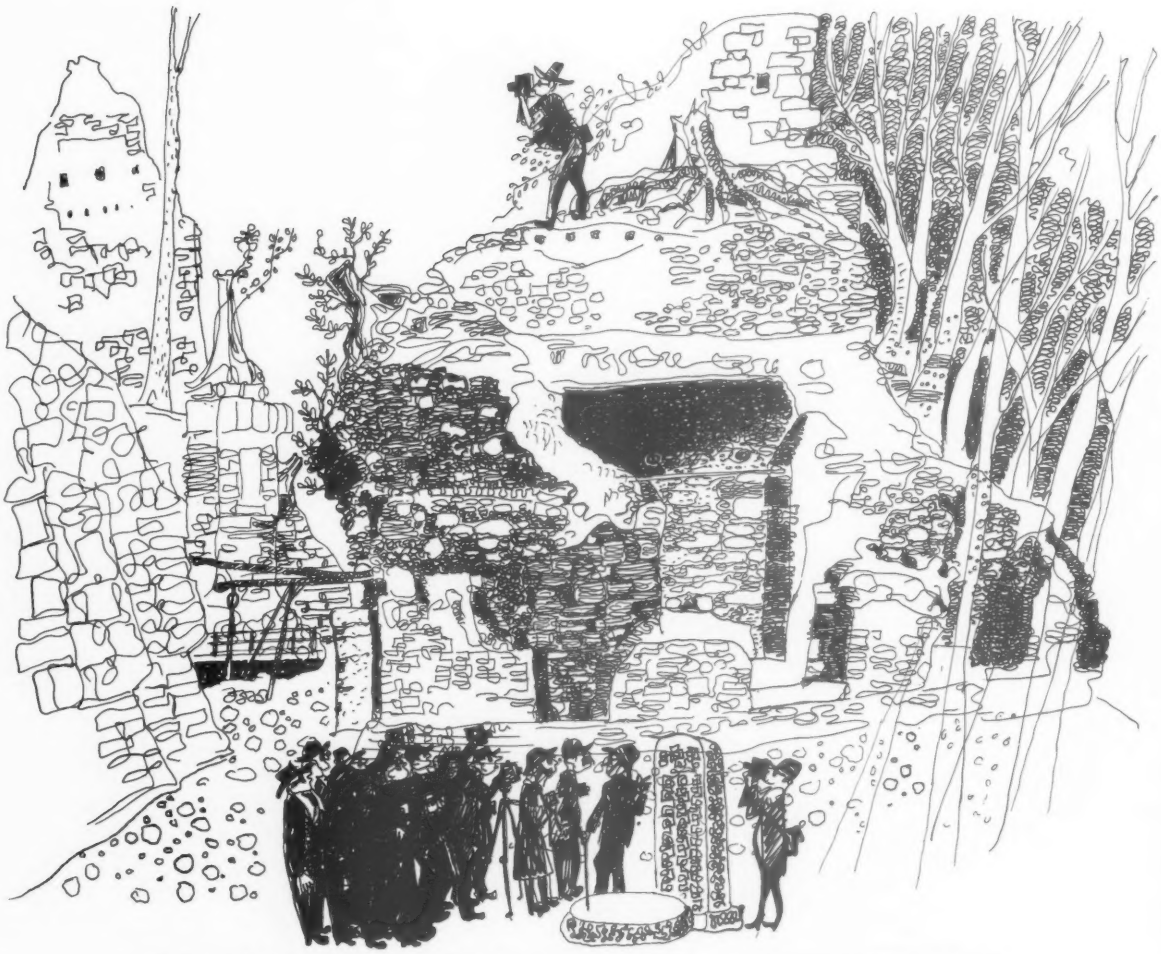


Sherds are the backbone of archaeology, next of course to the real McCoy bones . . . For every skeleton there are ten thousand busted sherds (or is it shards?); they're hell to match up but when they do join, a whole civilization unfolds . . . all add up to Grandmama Maya cooking goulash or patting frijoles way back in five-o-five A.D.

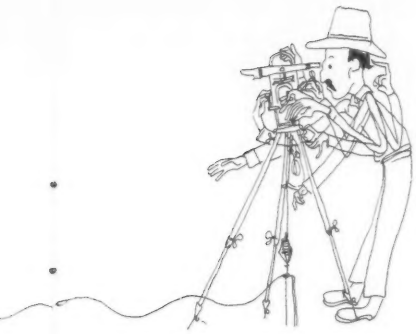


Chicleros with machetes and a jeepload of archaeologists going to work at 7:00 a.m.

These are the surveyors going out to work in the jungle, each with four husky chicleros to carry the gear and do the work.



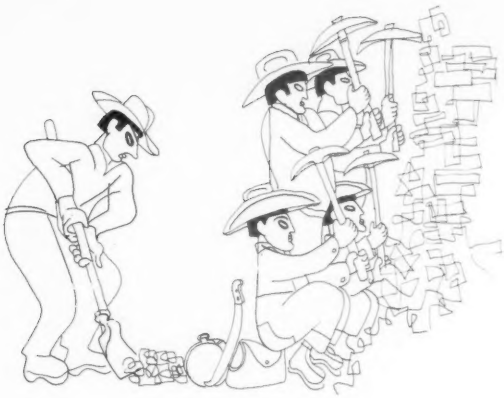
No true scholar archaeologist would dare name an old wreck of a monument "The shrine of Nedjma, the starry eyed virgin of November twelfth Long Count." They just number them; so, here is 20 with 26 beyond. It's not a very clear drawing but then neither are the ruins.



The greatest invention of mankind to aid the field man is the transit. It is a seeing-eye which can look straight ahead for a mile and up and down three hundred and sixty degrees at "true north"—if you can master the delicate twists and turns.

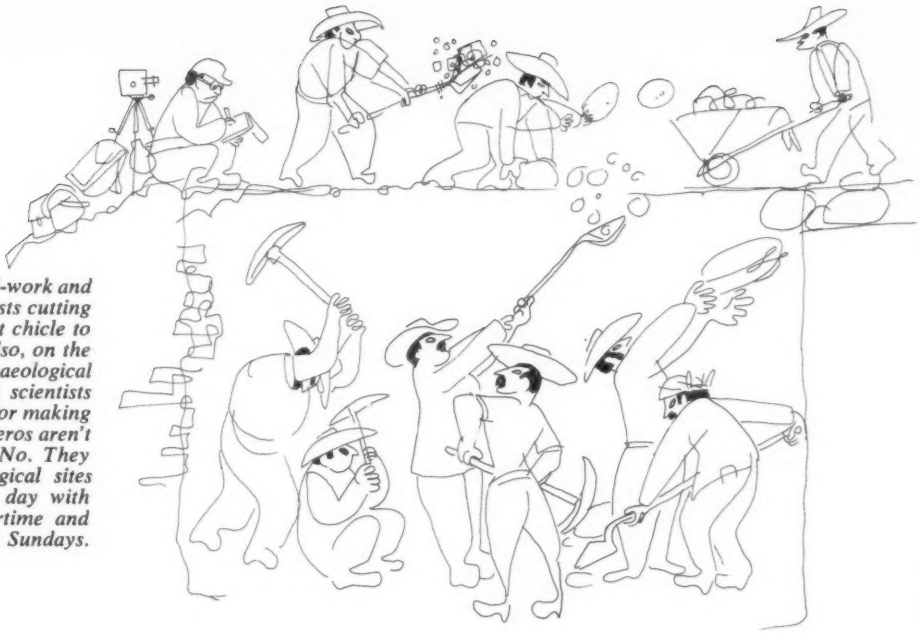
Home, sweet home

Six-o-five and the morning routine

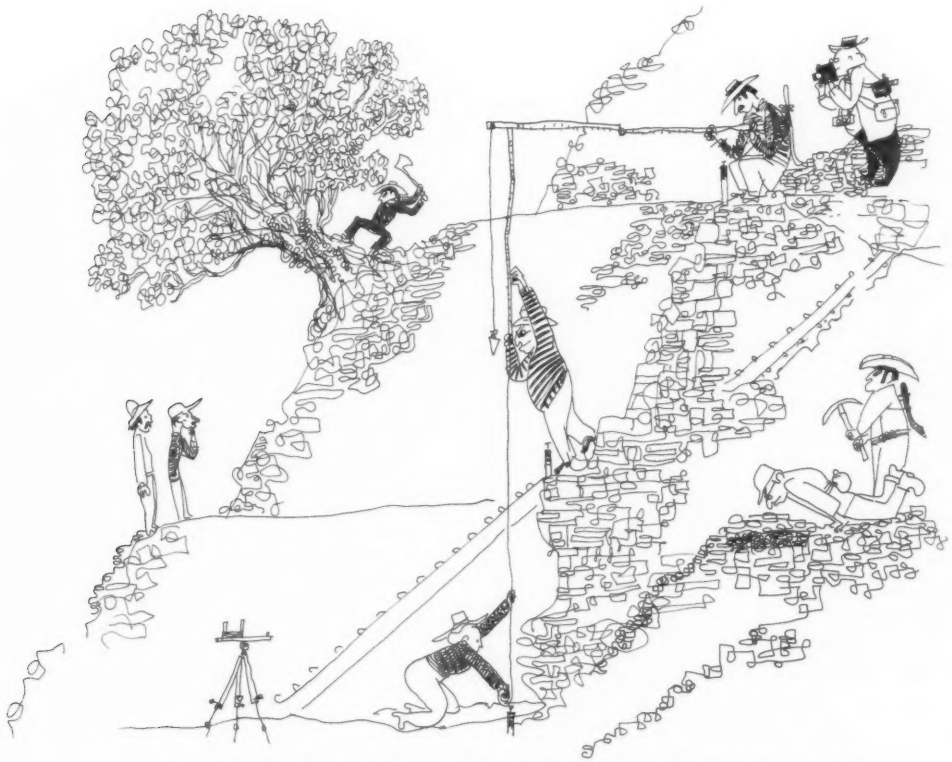


Here is a fine pattern of chicleros knocking down an ancient wall. It is only about a hundred and ten in the sun, but these boys are dressed buttoned up solid and oozing.

Adam and Eve never had it so good, and all screened too.

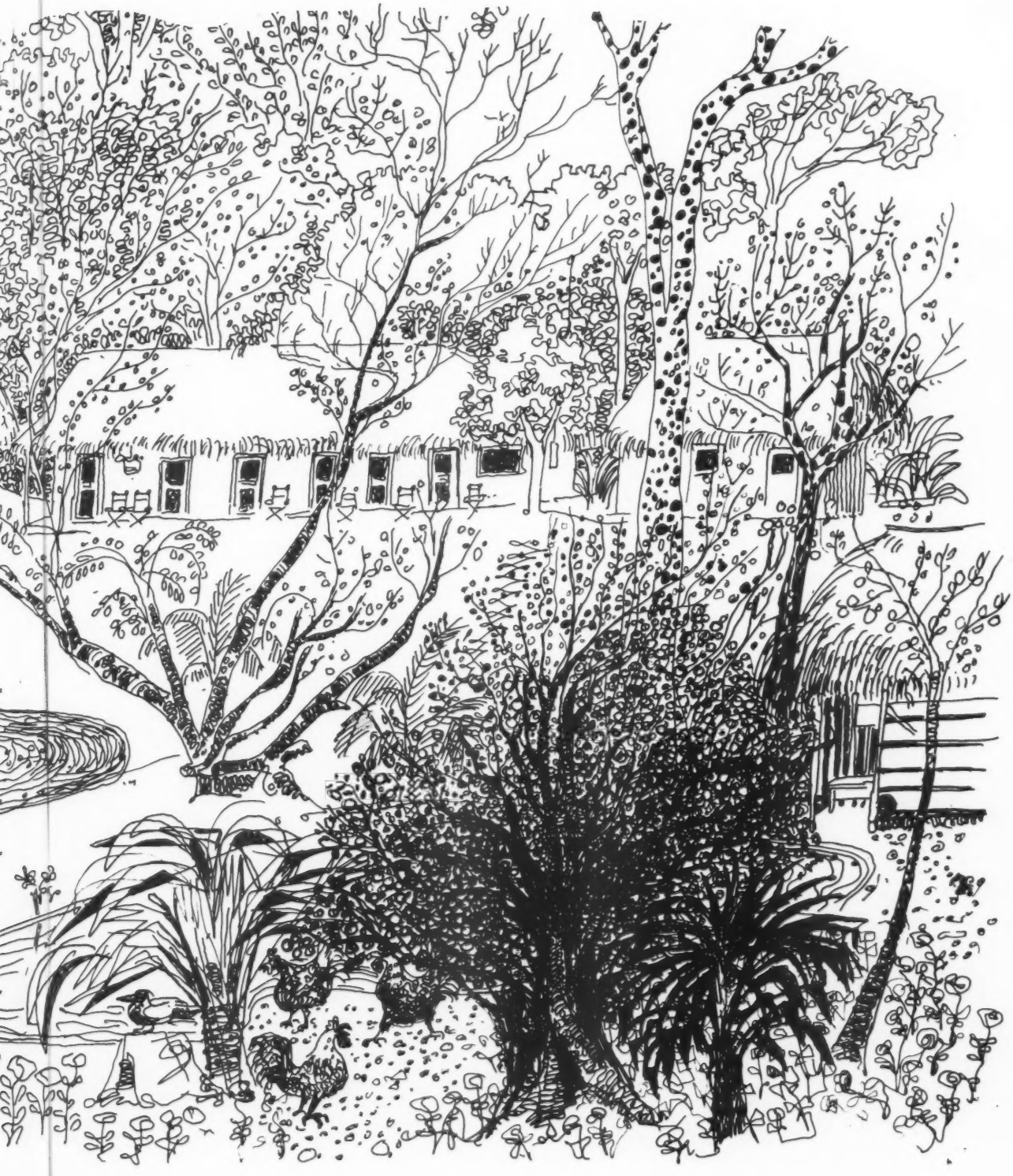


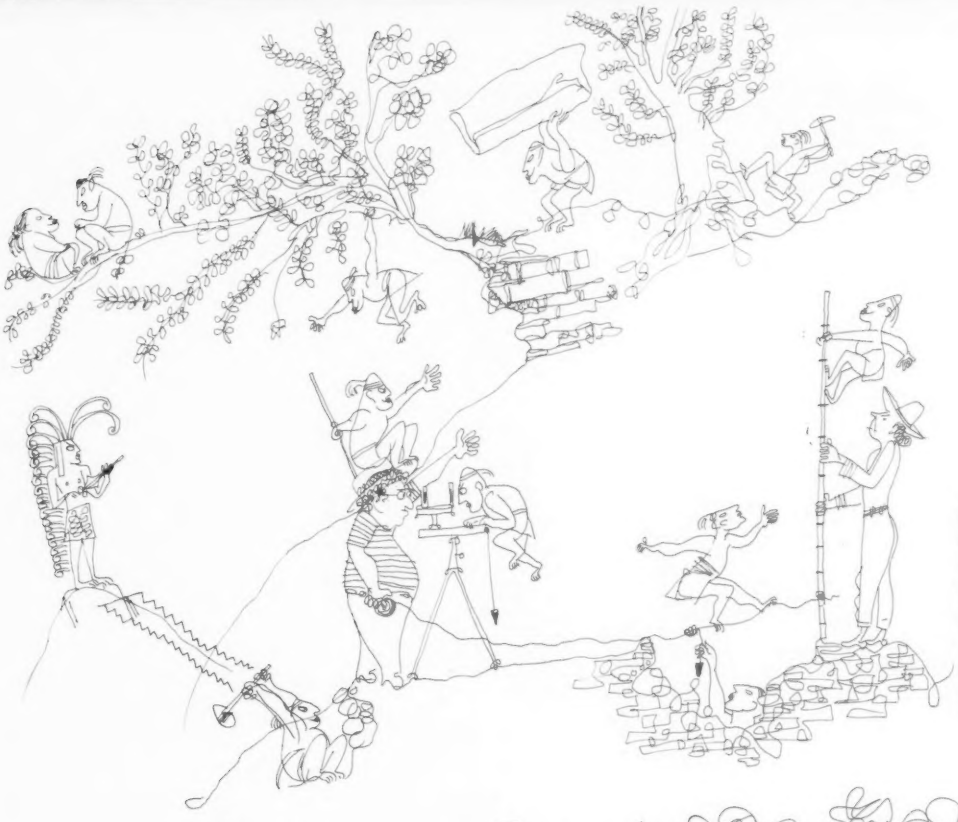
"Chicleros" are men-of-all-work and originally lived in the forests cutting the bark of the trees to get chicle to make chewing gum and also, on the side, they located archaeological sites. Now the American scientists have discovered a plastic for making chewing gum, so the chicleros aren't chicleros any more. No. No. They are diggers at archaeological sites and work an eight hour day with time and a half for overtime and double on Saturdays.



For any other middle-aged hopeful who thinks archaeology is just a-settin' with a gin and tonic and yelling at a workman to dig or measure, this is an accurate delineation of what to do until the doctor (of philosophy) comes.

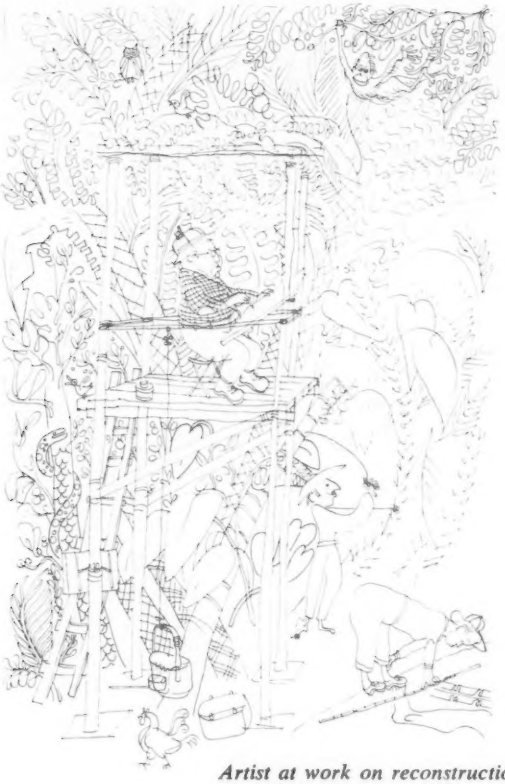
The reservoir which contains the crocodile and a lot of golden scum is really two reservoirs half of which are covered by thatched roofs to keep the water from evaporating too fast. If you cross the dike and look back, there are the quarters of the Expedition staff. I made this drawing on Easter morning. Everybody was either away at Flores at a dance or sleeping late. And it was quiet. Rudy, our transit man, came out of his hut and yawned and looked at my drawing and said, "It is the headquarters of the staff." Then I knew it was all right, so I quit and went back for tinned Easter eggs.



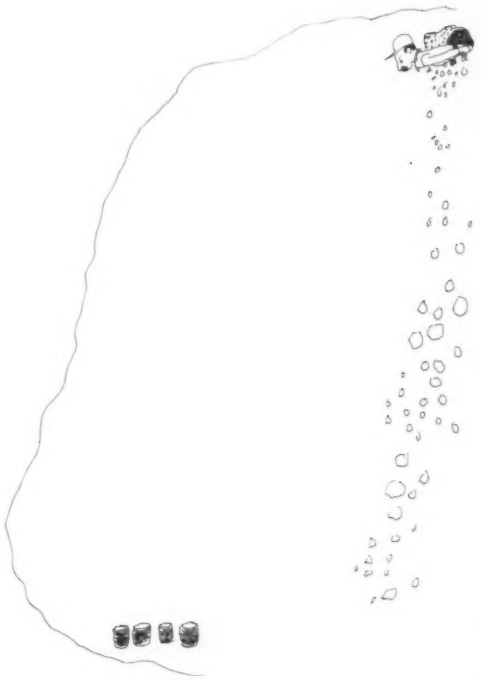


After a couple of months it gets you, like a good jungle should. The little people fog your scopes and the tapes stretch. And Betty says plaintively, "It's only a joke, Al, a poor, tired, worn, little joke."

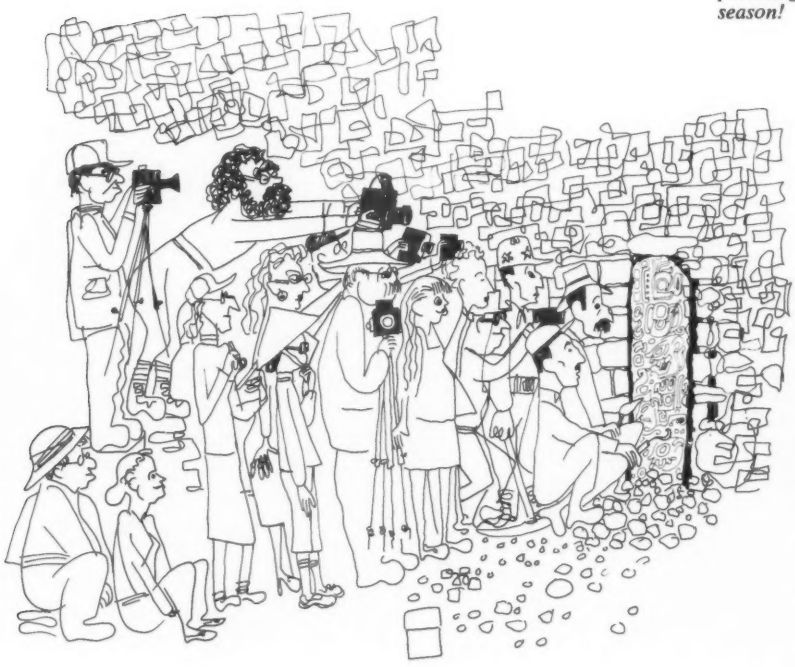
Bird watching tourists



Artist at work on reconstruction drawing of sculptured stone while wife takes detailed measurements to satisfy the director's demands.



Dom Pedro, the Indian pick man, has just hit nothing . . . and opened a big hole doing it, which turned out to be a richly stocked tomb of an important personage—the highlight of the season!



It used to be traditional that when you uncovered a tomb of some ancient, the gods would drop you dead in your tracks or curse you so hard that your arm would wither or something equally awful and serious would happen. But, nowadays, you couldn't possibly collapse in a heap without falling over six tourists, a visiting scientist and his wife, two photographers from "Life" and all the members of your staff who are waiting for the "big moment." This is a true picture of the discovery of Stela X.

Temple I is the pin-up of Tikal and is being restored—gradually. It is high and wide and handsome and is the cynosure of all eyes and cameras. On Saturday nights, the boys climb up and put an F.M. phonograph in the upper temple and the place resounds to Bach, Beethoven, and Brahms.

SIR LEONARD WOOLLEY

By M. E. L. MALLOWAN

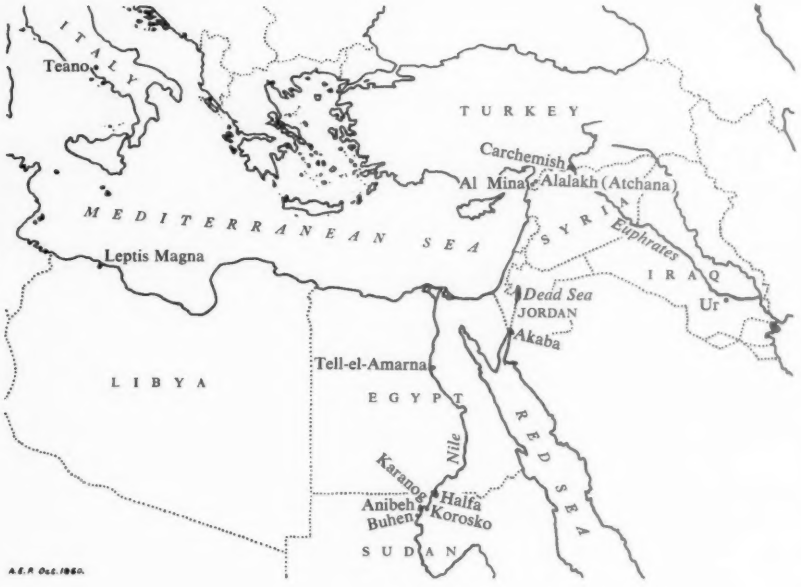
Professor Mallowan, himself a famous archaeologist, writes that in preparing this appreciation of Sir Leonard Woolley for the obituary columns of The London Times, he included two paragraphs from "anonymous hands"—those having to do with archaeological work in India and Pakistan and with the preservation of treasures during the war years of 1943-1946. To Professor Mallowan and to The Times we are most grateful for the permission to use the article. We have made a few slight changes, mainly in regard to Sir Leonard's relation to the University Museum.

Sir Leonard Woolley, internationally renowned archaeologist, died in London on February 22nd of this year. His career as a digger spanned a period of over forty years; his first excavations were on the Roman wall at Corbridge in 1906 and his active work in the field was concluded in Syria in 1949. Thereafter he was fully engaged in completing the publication of his finds. Sir Leonard's association with the University Museum covers nearly the same period, having begun in Nubia in 1907 when he was a member of the University Museum Eckley B. Coxe, Jr. Expedition; this was followed by a short visit to Philadelphia where he worked on the collections obtained by that expedition. In 1922, when the Joint Expedition of the British Museum and the University Museum to Ur in southern Iraq was inaugurated, Woolley was chosen as field director.

Woolley will always be remembered as one of the most successful diggers ever engaged in field archaeology. He had an extraordinary flair not only for choosing a potentially rich site but also for attacking those parts of it which concealed the most important remains. Nowhere was this flair shown more clearly than at Ur where his greatest successes were obtained. The climax of that expedition was the discovery of the famous Royal Cemetery of Ur, which yielded to the spade the incomparable treasures of Sumerian civilization, many of them deposited in shafts with multiple burials, before 2500 B.C. Woolley, though employed by various institutions to conduct excavations on their behalf, remained a free lance throughout his career and was wont to say that he was the first archaeologist who had contrived to make a living out of this profession.

The son of the Rev. George Herbert and Sarah Woolley, Charles Leonard Woolley was born on April 17, 1880, a member of a large family and had to pay for his education through scholarships which he won for St. John's, Leatherhead, and subsequently for New College, Oxford, where he obtained an honours degree in theology. It was Warden Spooner who with a rare discernment told him that he must abandon his intention of becoming a schoolmaster and make archaeology his career. Much of his youth was spent in a poor parish in Bethnal Green and at an early age he acquired an interest in paintings, was a frequent visitor to the Whitechapel Art Galleries, and became familiar with the Old Masters. This taste remained with him all his life and in his retirement he collected begrimed paintings at country auctions, cleaned and repaired his acquisitions, some of which were of a high quality and found their way to important exhibitions and national art galleries. He was deft with his hands and many a delicate and fragile antiquity was salvaged in the course of his excavations by his imaginative methods combined with an exceptional dexterity.

After graduating from Oxford he went to France and Germany in order to study modern languages and a year later was appointed assistant to Sir Arthur Evans, then Keeper of the Ashmolean Museum, where he served a valuable apprenticeship before committing himself entirely to field archaeology. His work in the Near East began in 1907 when he excavated in Nubia in



partnership with Randall MacIver, a scholar of high calibre to whose precise methods he owed much and who, at that time, was Field Director of the Eckley B. Coxe, Jr. Nubian Expedition of the University Museum. At Karanog he dug the first big Meroitic cemetery on record; but in spite of the rich finds which included inscribed and painted gravestones, bronze vessels of Greek workmanship, and painted pottery he concluded that "the whole Meroitic civilization was but a backwater, remarkable as an isolated phenomenon in African history, but contributing nothing to the general stream of culture and of art." Such discoveries did not satisfy his original and creative mind, but he also dug at many other non-Egyptian sites between Korosko and Halfa, where he was all the time gaining in experience in practical problems, in the control of workmen, and in fields of discovery which ranged from the Early Dynastic down to Roman times. A brief interlude in Italy, where he conducted a small dig in the ancient baths at Teano on a wooded hill-top in ancient Sabine territory, completed the formative stage of his training as a field archaeologist. He then made plans to dig at Leptis Magna in Tripolitania, but the outbreak of the Turco-Italian war prevented him from realizing this scheme, and it is curious to reflect that he might otherwise have spent the greater part of his archaeological career in North Africa.

Instead, in 1912 he was appointed to succeed Dr. R. Campbell-Thompson as leader of the British Museum expedition to Carchemish, where he was accompanied by a brilliant young man who was later to become famous as Lawrence of Arabia. There he made a number of spectacular discoveries in the temples and palaces of the Neo-Hittite period. A series of orthostats with carvings of north Syrian gods and rulers, many contemporary hieroglyphic inscriptions, and the layout of the town defences were considerable contributions to knowledge at the time.

While he was employed in north Syria Woolley, together with Lawrence, took the opportunity during the off season from Carchemish to make a survey in Palestine of the country stretching northwards from Akaba towards the southern end of the Dead Sea. The time available for the expedition was not much more than six weeks, in January and February, 1914, but it enabled these two archaeologists to obtain a general knowledge of an area which, except for the few centuries of settled Byzantine government, had changed little since the days of Moses. The account of this work under the names of Woolley and Lawrence was published in a book entitled *The Wilderness of Zin* (1915). The discussion of the climatic conditions in the past, the elucidation of the routes from Palestine to Egypt in Biblical times, and the exposition of the way in which the Byzantine Government in spite of the most unfavourable circumstances of soil and climate was able to spread over the whole district a veneer of settled civilization, were indeed a valuable contribution.

The dig at Carchemish was interrupted by the 1914-18 War, in which he served with distinction. He was blown up at sea off the coast of south Asia Minor and for the remainder of the war (1916-18) was in a Turkish prison camp, where once again his manual skill and inventiveness did much for the amenities of the place.

In 1919 he concluded the dig at Carchemish under considerable difficulties, for he found that his camp was in a no-man's-land between the French army and Kurdish irregulars; both sides consulted him at intervals. Subsequently he moved to Egypt and did fruitful work, particularly in a house quarter once occupied by ancient craftsmen on the site of Tell-el-Amarna, for the Egypt Exploration Fund.

Fortified by much experience he began his major work at Ur in 1922 and dug there systematically at intervals for thirteen years. He began by concentrating on the Temenos or sacred area within which lay the principal temples and palaces. Here he established a tremendous sequence of cities which began on water-logged soil, perhaps in the fifth millennium B.C. at what is known as the Al ʿUbaid period, and rose one over the other to form a mound some 70 ft. in height, until the last occupation in the fourth century B.C. Here for the first time he exposed a complete range of town plans which revealed more fully than ever before the architectural achievements which had occurred in south Babylonia from Sumerian times onwards. It was perhaps in the revelation of Sumerian civilization that Woolley did his richest and most productive work.

The documents, which included some of the earliest literature known to mankind, were so prolific that many years will still be needed before their publication can be anything like complete. They are also of extraordinary archaeological interest because of the light they throw on all the buildings and small remains associated with them. The sculpture of these early periods, as well as the metallurgy, is of a very high order and Woolley's remarkable insight into the methods used by ancient craftsmen and builders has been one of his most valuable contributions to knowledge. His understanding of ancient methods also enabled him to follow up clues in the ground with a penetration often denied to skilled diggers.

Woolley however found so much that he was handicapped in finding time to consult other authorities, and academically his work often suffered accordingly; more particularly in his chronology, which was often at variance with accepted criteria. There seems to be little doubt now that his dating of the Royal Cemetery was several centuries too early and similarly at Carchemish there are many who cannot accept his sequence dating for the sculpture. In judging works of art, too, a Victorian outlook was not acceptable to the critics, and his book on *The Development of Sumerian Art* (1935), while invaluable in all matters touching on craftsmanship, appears to be aesthetically defective. His books on *The Sumerians* (1928) and *Abraham* (1935) were out of touch with linguistic and literary problems and thus fell short of being authoritative.

For all these defects, however, there was ample compensation in the imaginative treatment

Between him and his foreman, Sheikh Hamoudi Ibn Ibrahim, there was a life-long friendship

throughout his writings of whatever he found. Gifted with an unusually fluent style, an enchanting lecturer, no one has better described the sequence of his discoveries, and many of his popular books have enthralled a very wide public. *Digging up the Past* (1930) ran into many editions, and even more successful was *Ur of the Chaldees* (1930) (subsequently translated into many languages), which took the reader on a tour of the excavations and enabled him to feel at home among ancient Sumerian as well as Babylonian remains. To follow Woolley round the site at Ur and to hear him talk about the private houses was to feel oneself living among a vanished people. If his imagination sometimes outran the facts, this to him was preferable to allowing knowledge to lie dormant and inconclusive.

His industry was prodigious. While on the dig he slept little, rising with the sun and often still at work in his study or in the catalogue room until two or three o'clock in the morning. He could not have published so much had he not

been exceptionally quick in composition, and he used to say that writing was an enjoyment to him. The large definitive publications of Ur came out in a steady stream from 1927 onwards and are still being produced. These volumes include *Ur Excavations,* Vol I, "Al ʿUbaid," in collaboration with H. R. Hall (1927), mostly concerned with prehistoric and Early Dynastic remains; Vol. II, "The Royal Cemeteries" (1934) contained some 600 pages of text, illustrated by 273 plates, a *magnum opus* which no other living archaeologist could have produced in so short a space of time. Vol. V, "The Ziggurrat and its Surroundings" (1939), is a testimonial to his insight into ancient architecture, which deservedly earned him the honour of being made an honorary A.R.I.B.A. Vol. IV, "The Early Periods" (1955), an invaluable summary of discoveries concerned with remains prior to 2000 B.C., could no longer keep pace with collateral evidence from elsewhere. Two more volumes are in MS. and still await publication. For the general reader who is not a specialist in archaeology his *Excavations at Ur, a Record of Twelve Years Work* (1954) is a most readable summary account of these achievements. To have dug so much and left nothing unwritten is indeed a phenomenal record.

When he had completed his work at Ur he went on to dig at Al Mina near Antioch in Syria, where he made many discoveries concerning the import and export trade between the Aegean and Syria. Even more remunerative were his discoveries at Atchana in the Hatay (1937-39 and 1946-49), where the palaces, temples, sculpture and pottery of the second millennium B.C. were of a type hitherto little known. Once again a rich find of associated documents gave us new concepts of the political history and everyday life in the small kingdoms of the time.

The scientific account of this dig was incorporated in a book entitled *Excavations at Atchana-Alalakh* (1955), full of original material and of controversial matter: his early chronology is however not generally accepted. The popular account appeared in a Pelican book entitled *A Forgotten Kingdom* (1953).

In 1938, less than a year before the outbreak of the Second World War, Woolley accepted an invitation from the Government of India to advise them about their programme of archaeological work. Here he made many valuable recommendations on the most promising sites or areas for exploration; on the best methods and agencies for the development of exploration not only by the Government but by universities and learned societies; on the best method of training or selecting officers for exploration work. He completed this task in a remarkably short time with considerable perceptiveness. Many of his recommendations were carried out and the subsequent fruitful developments in India and also in Pakistan owed much to his advice.

From 1939-43 he served as a major in the Directorate of Public Relations and undertook the task of building up a specialized service—the monuments, fine arts, and archives branch of Civil Affairs. The object was to provide whatever protection might be possible to the ancient monuments, works of art, libraries, and collections of archives in the various areas of the war. For this work, owing to his imaginative gift for organization, he was peculiarly well fitted. From 1943-46 he was Lieutenant-Colonel G.S. Archaeological Adviser to the Civil Affairs Directorate, and when Italy became a battlefield he was able to safeguard valuable treasures which had been removed from the Pitti, the Uffizi, and other Florentine galleries during the first days of the war. He immediately arranged with a great measure of success a systematic guarding of other captured deposits.

He was very good company, a delightful *raconteur,* and had a good understanding of his workmen in the Orient. *Dead Towns and Living Men* (1920) contains many reminiscences which well illustrate his sense of humour, ingenuity, and an unaffected *joie de vivre* which was one of the most charming facets of his character. Between him and his foreman Sheikh Hamoudi Ibn Ibrahim there was a life-long friendship. Hamoudi was foreman of all his principal expeditions from the time he went to Carchemish in 1912, and gave devoted service which Woolley would always have wished to be remembered.

In 1927 Woolley married Katharine Keeling. Gifted with exceptional charm and intelligence, she took an active part in his work. Her drawings of the metal objects were of a distinguished competence, and above all she did much to attract financial support for her husband's excavations and enlisted the help of persons who were able to contribute generously. An invalid for most of her life, her exceptional vitality resisted the encroachment of a vital malady and overcame disabilities which would have taken a far heavier toll from someone less courageous. She died in 1945.

Sir Leonard was the recipient of the University Museum's Lucy Wharton Drexel Medal in 1955. Many of the readers of *Expedition* will remember with pleasure his discussion of the problems and aims of archaeology on that occasion.

patterns in music

By JOSEPH A. BARONE

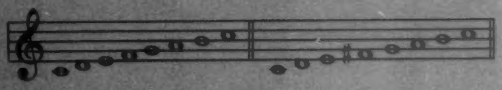
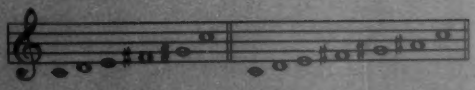
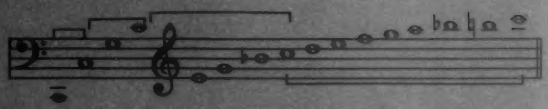
In the story of Man, music has often provided a key to his artistic growth. It has revealed striking similarities of expression during various stages of his intellectual development and it has served as a correlating chain between cultures of widely separated epochs and ethnic origins.

Scholarly musicological research has enabled us to conjecture reasonably accurately the musical customs of such diverse ancient civilizations as those of India, Sumeria, Greece, and Rome. In recent years, archaeological findings have provided tangible evidence to substantiate these theories. With the assistance of ancient musical instruments and documents unearthed from long-forgotten tombs, vaults, and sacred temples, it has become possible to calculate specifically the scale systems on which music of the most remote cultures was based.

Just such a collection of rare musical instruments is housed at The University Museum. Containing rare and unique items from Sumeria, Greece, Africa, Asia, and virtually every other primitive and civilized culture known to us, this collection has supplied invaluable source materials for significant musicological and ethnomusicological discoveries.

Formerly displayed in a single gallery, choice specimens from the collection have more recently been integrated into the various exhibits throughout the Museum. In the African section, for example, one can find a lute of the Bajokwe tribe of the Belgian Congo, a harp-guitar from West Upper Guinea, and an assortment of drums from the Kingdom of Benin in Nigeria. On the walls of other galleries are displayed a Burmese gold harp, a Chinese la-pa, a Javanese chalung, a Tibetan rag-dun and a Roman buccina.

Perhaps the most interesting specimen in the entire collection is the large lyre from the Biblical city of Ur, in Sumeria. Dating about 2,600 B.C., it is mounted with a gold and lapis lazuli bull's head and with a plaque of engraved pieces of shell set in bitumen and depicting various scenes. The topmost register shows Gilgamesh fighting with two bulls; the others show a dog carrying joints of meat, a bear dancing while a donkey plays a lyre, and a mythological creature and a gazelle holding fluted tumblers (see cover).

The lyre was discovered in 1927 by Sir Leonard Woolley, director of the Joint Expedition of the British Museum and the University Museum to Iraq, along with a silver harp and a



pair of cylindrical silver pipes (double-oboes). These treasured relics have aided such musicologists as Francis W. Galpin *(Music of the Sumerians, Babylonians and Assyrians),* Kathleen Schlesinger *(The Greek Aulos),* and Curt Sachs *(Archiv für Musikwissenschaft,* April, 1925), to arrive at important calculations regarding the musical system of the Sumerians.

Canon Galpin, for example, theorized that this system was based on a seven-tone diatonic scale with the fourth step augmented. This would relate it to our present-day diatonic scale of Do, Re, Mi, Fa, Sol, La, Si, and Do, excepting that the Fa would be sharped (C, D, E, F#, G, A, B, and C).

Professor Sachs, in turn, believed that such a scale might have had a nonchromatic pentatonic basis, his findings being further developed by Dr. Schlesinger whose research on the silver pipes (with their equi-distanced four finger-holes) led her to arrive at a pentatonic scheme approximating C, D, E, F#, G#, and the octave C by overblowing.

This latter scale is related to our whole-tone scale, which uses the same notes with the addition of the A Sharp (i.e., C, D, E, F#, G#, A#, and C).

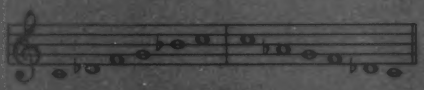
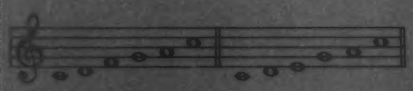
Instruments from other non-European cultures substantiate the theory that many if not most systems did not follow our diatonic scale pattern. It must be understood that this diatonic scale-scheme lends itself particularly well to our own musical concepts because of our highly complex cultivation of harmony. Risking oversimplification, it might be generally concluded that our development of harmony followed our aural acceptance and utilization of the higher components or overtones of musical sounds. If we examine the overtones of the note C, for example, we find in the first three octaves all the elements of basic classical harmony, with the interval of the octave, fifth, major third, minor third, seventh, etc., while in the fourth octave the melodic chain approximates our diatonic gamut of Do, Re, Mi, Fa, Sol, La, Si, and Do.

However, since non-European musical cultures are almost exclusively concerned with only melody and rhythm, their basic octave has been subdivided into an almost infinite variety of scale schemes. Arabia arrived at a 17-tone scale as far back as the 13th century, Java evolved its equi-distanced pentatonic and heptatonic scales in the 8th century, and India established its 22-intervalled *sruti* system during the 6th century. Further, Hindu music conforms to a rigid system

of scale-like melody patterns called *ragas,* of which there are no less than 72.

It must be understood that for many Asiatic cultures music has an essentially religious or metaphysical significance. For this reason, our Western system, which conforms to strict rules of harmony, is found not only constraining as to melodic invention but puerile in its academic restrictions.

Moreover, while the diatonic scheme of our Western music (C, D, E, F, G, A, B, and C) can be found in a number of other non-European musical systems, it is the pentatonic (five-note) scale of C, D, F, G, and A which seems to appear most frequently among such widely-separated musical cultures as those of the Chinese, Africans, Celts, Scots, and the American Indians.

As a matter of fact, since the late 19th century many of our own Western composers seem to have been drawn to exotic musical sources for fresh melodic inspiration. Thus we find Debussy employing the whole-tone scale, (C, D, E, F#, G#, and A#), a penta-scale consisting of C, D, F, G, and A (based on the Japanese Ritsusen scale), and the so-called "Aeolian" scale of C, D, Eb, F, G, Ab, B, and C (known in India as either Kyravâni or Pilu). Ravel used, among other scales, the "Phrygian" mode of C, Db, E, F, G, Ab, Bb and C (equivalent to the Indian Vakhulabharna).

In his opera, Madame Butterfly, Puccini evoked Oriental color by using the Japanese Zokugakusempo penta-scale of C, Db, F, G, Bb, and C ascending and C, Ab, G, F, Db, and C descending; the Ritsusen row of C, D, F, G, A, and C; and the Ryosen scale of C, D, E, G, A, and C.

In recent years, there has been a trend among some of our contemporary composers to shift to non-diatonic and serial writing, and to experiment with microtones (intervals smaller than our half-steps). Among these have been Alois Haba, Hans Barth, Ernest Bloch, and Bela Bartok. As a matter of fact, Julian Carillo has gone beyond the quarter-tone by using eighth-tone and sixteenth-tone intervals; and Harry Partch has based some of his compositions on a forty-three tone subdivision of the octave.

Thus, as the music of the West reverts more and more toward long-established concepts of the East, we find the universal language of music revealing an affinity of musical cultures spanning five thousand years, bringing each into a common orbit regardless of the remoteness of epochs and ethnic origins.

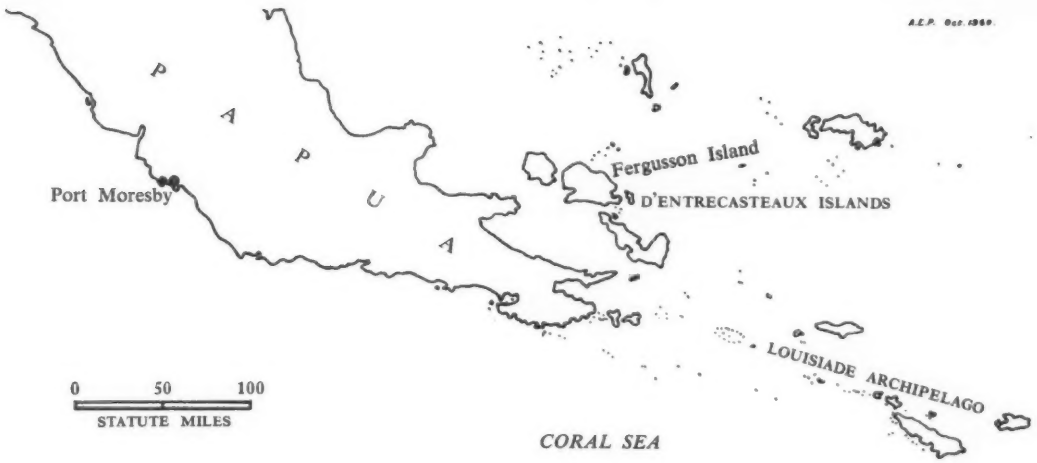
CANOE MAKING *among the Molima of Fergusson Island*

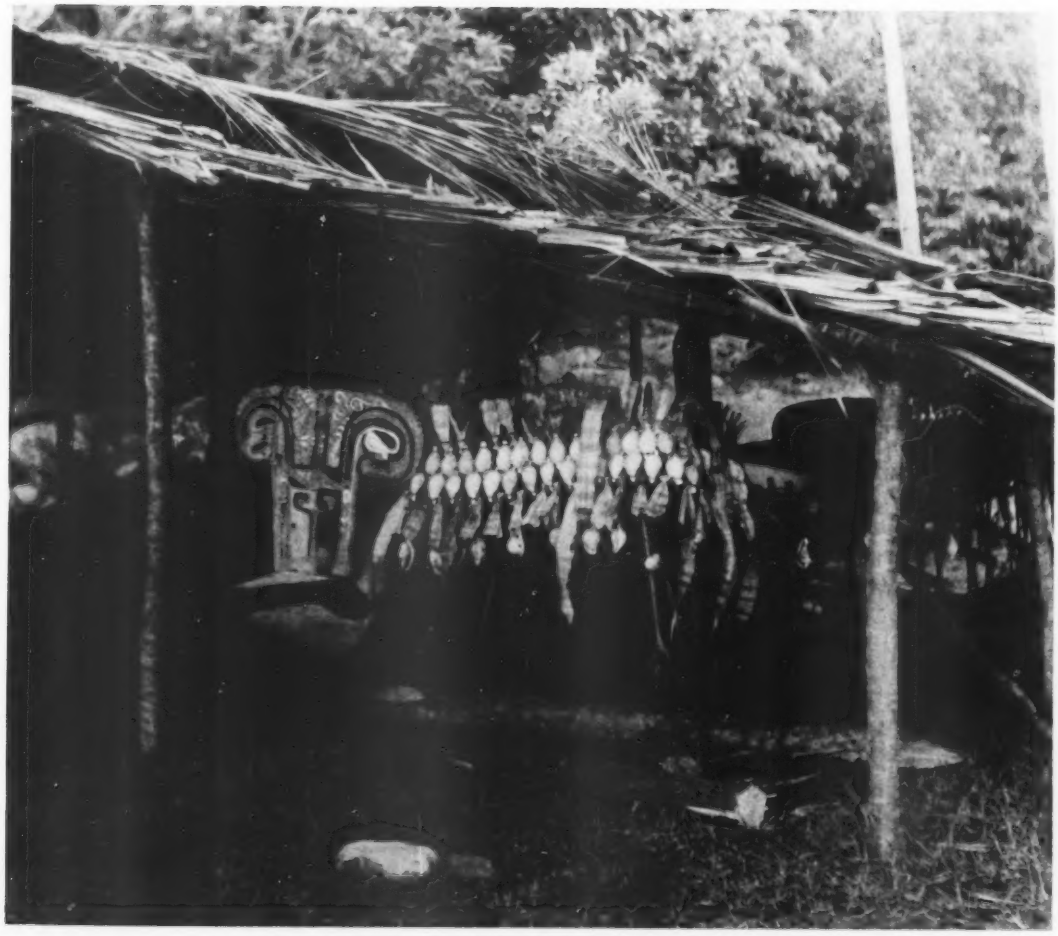
By ANN CHOWNING

At dusk on May 12, 1958, as I sat on the beach talking with my adoptive family, four beautifully decorated canoes rounded the point east of us and drew up outside my house. I recognized them as a group just completed in Paiaiana, the Molima census group east of Ailuluai, in which I lived. The crews had stopped to invite me on their maiden voyage, and I was delighted to accept. Because the brief calm season was drawing to a close, this might be my only chance to see the final ceremonies associated with the construction of a new canoe. While the wind blows, the Molima coast is dangerous even for European vessels, and the easily swamped native canoes do not venture out. I quickly packed my gear and then, when I found that the Paiaiana men had settled down to chat and chew betelnut with my household, reviewed my notes on canoes in preparation for the activities of the next few days.

From the day I arrived in Molima, I had been fascinated by the large outrigger canoes. They were composed of planks sewn to a dugout hull, and each one carried end-boards delicately carved in traditional curvilinear designs, surmounted by a small human figure. The newer ones were painted orange, black, and white, and further decorated with ornamental braiding, cowrie shells, and fluted strips of pandanus leaf. Few hamlets contained such canoes, and I found that they were always owned by important men in the community. The reasons were complex. A plank canoe is not only a principal form of wealth, but also a means of acquiring high status for the man who sponsors its manufacture. Unless he can fill the role himself, he must hire an expert canoe-maker, a descendant of other experts who knows how to shape and assemble the parts and how to perform the proper magic at each stage. A second craftsman may be needed to carve the decorative portions. Their services are expensive, and only a fairly wealthy man can afford them. He must also be able to call upon and direct the efforts of kinsmen and fellow villagers in heavy work such as the collection and transport of materials, and must provide a series of feasts to reward them. They are usually willing to help, both because of the food and because they will be able to use the completed canoe, but it is no small task to assemble them in sufficient numbers when they are needed. When the canoe is finished, the owner must organize a splendid ceremony to mark its first appearance, and it must be judged both seaworthy and beautiful. Finally, he must take or send it on its maiden voyage, and hope that the villages it visits will show approval of the canoe and its owner by donating quantities of food and valuables.

Canoe-making is consequently a major task, not to be undertaken lightly. Each one is built in the name of a dead kinsman of the owner, and the latter acquires additional prestige by giving a mortuary feast with the food obtained on the maiden voyage. After that, the owner uses the vessel to visit friendly tribes, on Fergusson and other islands, with whom he trades for necessities such as clay pots and wealth tokens such as shell ornaments. An important man must be wealthy, and the most successful trader in a community is likely to become its headman. In the past, canoes were also used for raids on enemy tribes, in order to capture victims for cannibalistic feasts. Now that the Australian government has eradicated warfare and cannibalism in this area, the trade network has enlarged to include not only former enemies but groups living outside the region into which the Molima dared to travel aboriginally. The leader who was once expected to show equal prowess in war and trade now proves himself in trade alone, but has increased opportunity to do so. His path to prestige is still greatly facilitated by possession of a canoe, and





A new Molima canoe in its shed after its maiden voyage

Using an adze to shape a new paddle

Men and boys sling missiles at the shed from which the new canoe will emerge. It was too stormy for them to operate from canoes, as they would normally do.

the Molima say that mountain dwellers never become as important headmen as coastal dwellers because they lack canoes.

If a man decides to make a canoe, he may begin at any time, and often spends a year or more in intermittent work, but the final phases should always occur in the calm season. I had watched several stages of manufacture, but because of an ill-timed trip to the interior of the island, had missed the launching of the four Paiaiana canoes. My notes were based on descriptions by the participants, who never tired of telling me what a pity it was that I had not seen one of the two most important Molima ceremonies. (Later I saw a version that was severely curtailed because of stormy seas.) When the ceremony began, each canoe was still hidden in its shed, along with men and women of the owner's village dressed in full dance regalia. While these sang magical songs to make the canoe swift and well-balanced, men from other villages paddled their canoes toward the shed. Each canoe carried a performer who danced back and forth on the platform, slinging missiles at the shed during the pauses in the dance. Meanwhile, the group inside finished singing and the men began to drum. At the sound of the drums, a man stationed outside recited a spell to increase the splendor of the appearance of the canoe and the dancers, and opened the door. The canoe, hidden by mats and accompanied by drumming men and dancing women, was drawn out and then revealed in its full glory. The boys of the owner's village performed spectacular solos, of a type otherwise reserved for major mortuary ceremonies; then a man and two girls danced in succession on the canoe platform. When they had finished, the canoe was launched, apparently empty, and then paddled back to shore by small boys hidden inside. Then the men of the owner's village showed it off by paddling it far out to sea. When they returned, girls escorted the canoe ashore, sprinkling it with sea water from their cassowary feather dance ornaments.

These formalities over, the visitors had a chance to try out the canoe. They raced it against others, slung fruit from it as warriors had slung stones during sea battles in the past, and tried to tip it over. If it capsized, the crew had the privilege of raiding the owner's house and fruit trees. One of the Paiaiana canoes was tipped over twice during the trials. Finally the visitors came ashore, pelted with vegetables and betelnut by women of the village, and were feasted by the canoe owner as a reward for having attended his ceremony.

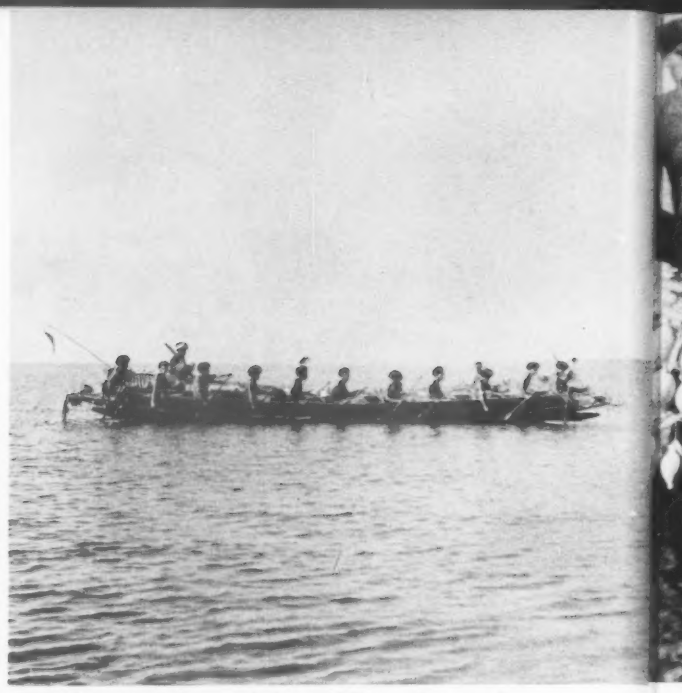
The owners of the four canoes that had been completed at the same time then began to prepare for the maiden voyage. This always consists of visits to other coastal Molima villages and the villages of the two adjacent tribes who were Molima allies in the past, the Kukuya to the west and the Nade to the east. At each village the canoe owner is given raw animal and vegetable food to take home for the mortuary feast. Important men in the group also receive individual presents of valuables, awarded according to their prestige or the strength of their magic, or in payment of former debts. Gifts of food are repaid in kind when residents of the host village make a new canoe and take it on its maiden voyage, while debts of valuables are repaid at any convenient time. In past weeks, I had twice been a member of a host group, but this was my first opportunity to fill in the picture from the point of view of the visitors. This first part of the trip would cover the area west of Paiaiana, starting with Kukuya and then working back through Molima, and a shorter second trip would cover Nade.

By 9:00 P.M., the crews were ready to leave, and I climbed onto an outrigger platform and dozed there as the men paddled toward Kukuya. At midnight we landed on a stony beach out of earshot of the nearest Kukuya village, and settled down for the night. I was awakened before dawn by chanting, and got up to find magical performances under way. Beside each canoe, a magician recited spells and spat to transfer the power of the words to the vessel. The spells were intended to enhance its beauty so that the Kukuya would express their admiration in generosity to the owner. At the same time, members of the crew were adorning themselves and reciting private spells to attract personal gifts. Once the magic had been performed, no one could eat until meat was given by our hosts. The men chewed betelnut and smoked cigarettes in lieu of breakfast, and we embarked shortly after dawn. As we paddled toward Lapwalapwa, the village selected for the beginning of the display, the men blew charmed conch shell trumpets to announce our coming.

Arrival struck me as anticlimatic. We beached the canoes, completely ignored by everyone except a group of children who watched from a distance. A canoe owner asked for the village headman, and eventually someone replied that he was coming. We stood at the edge of the village to wait for him; it would be a breach of etiquette for us to sit down at that point. Finally his deputy arrived, greeted us, and led us to the

Women dancing as the new canoe is drawn out

Boys perform the kind of dance that accompanies the launching of a new canoe. These two are imitating fighting grasshoppers.



(Left) A boy, wearing face paint and draped in crushed aromatic leaves, holds paddles and a conch shell trumpet beside the new canoe, which could not be launched because of the height of the waves. (Right) A new Kukuya canoe being paddled along the Molima coast. Plank canoes can be sailed, but sails are not carried on ceremonial occasions.

stone-paved circular platform which is the village gathering-place throughout these islands. We were told that the women would cook food for us while the men assembled; early as it was, some had already left for the gardens. Then the headman arrived, and the speechmaking began, sometimes in Kukuya and sometimes in Molima. My Kukuya was limited to the equivalent of "Hello," so that I could not follow all of the interchange, but the gist was clear. The headman jokingly threatened to withhold food, saying that he had waited all day to be fed when he visited Paiaiana. The leaders of our group responded in kind, and then we simply waited for almost two hours, until the giftgiving suddenly began. The young men did not participate, but stayed on the beach cooking food which the village women had brought them. The older men sat on the platform facing inward, displaying great nonchalance as Kukuya men and women, one by one, approached a visitor, made a short speech, often in angry tones, and laid or flung a gift beside him. The recipient usually neither looked down nor replied. The gifts were an interesting mixture of traditional items of trade, goods of European manufacture, and articles made by natives in distant parts of New Guinea and acquired by Fergusson Islanders when they went to work on plantations. Those given that day included clay pots, a stone adze blade, a shell bracelet, the pendants of shell and boar's tusk which are the badge of a headman, a cotton shirt, enameled basins, a Chinese wooden chest, and a painted barkcloth breechclout and two net bags from New Guinea. Some gifts were described in the speeches as "cooked," meaning that they were the settlement of old debts, and some as "raw," new debts for the recipient.

Trading was suspended in the middle of the day while we waited for two pigs, both repayments of old debts, to be captured. Our group sat chewing betelnut, supplied by our hosts, complaining of lack of sleep, and drowsing. When our meal was finally cooked, one of the young Paiaiana men came up to me and said, "Will you eat dog intestines?" I knew that dogs formed a major part of the gifts of food, but I had not realized that they were the only source of meat for the travelers. Unlike pigs, which are taken back alive, dogs are killed before they are given, and although some are smoked for the mortuary feast, the rest are eaten at once. Deciding that dog was preferable to numerous meals consisting wholly of boiled vegetables, I raised my eyebrows in assent, and was given a dish of liver, indistinguishable in taste from any other liver. At subsequent meals I found other cuts of dog easy to eat, though not particularly tasty.

When we had eaten, our hosts brought the major gifts of food: pigs, more dogs, freshly dug yams, and plantains. While the young men

(Left) The Kukuya canoe lands at Molima. The endboards are much cruder than those produced by the Molima. (Right) Kukuya visitors receive a dog and a pig, given in honor of their new canoe.

loaded the canoes, carefully covering pigs and pots against the sun, and smoked the dog meat, the older men stayed on the platform to receive a few final gifts and exchange speeches with our hosts. The speeches contained numerous references to the following of ancestral custom, the proper behavior of important men, and the obligations of kinship which had been established by intermarriage between the two tribes. Men tended to point out how well they themselves were behaving rather than to praise others. This ended the business of the day, and we ate supper and went to bed by ourselves, again ignored by the people of Lapwalapwa. It seems clear that these trips are primarily a formal method of maintaining peaceful relations between separate villages and tribes, so that they can cooperate in trade, warfare, and ritual, but are not expressions of genuine friendship. The warmth which the Molima show in dealing with close friends and near kin is notably lacking, and even the joking tends to be aggressive. If a new canoe visits a village under a special tabu designed to preserve foodstuffs for a large mortuary feast, the hosts may berate and even strike the visitors, who in turn despoil the village trees. Serious anger is not being expressed, since a village can preserve its tabu by simply refusing to receive the canoe. Nevertheless, this behavior illustrates a fact which the Molima explicitly recognize: relations between different districts, even within the same tribe, are basically unfriendly if not actually hostile, and considerable effort is needed to preserve alliances between such districts.

We set out early the next morning, after further recitations of spells, and began our slow journey back toward Paiaiana. Two men paddled each canoe, and the others walked along the beach to see whether the villages we approached would receive us. I stayed with the canoes, and for long periods we waited offshore for the walkers to arrive and negotiate. By contrast, the periods spent in the villages were relatively brief. The few villages under tabus all rejected us, but in the others we received more and more food and valuables. We spent our second night outside a Molima village, and by noon on the third day had arrived at my hamlet, at which the men dropped me off. I did not accompany them on the brief trip to Nade, but was invited to the mortuary feasts held immediately thereafter in the four hamlets of the canoe owners. By virtue of my participation in the trip, I was entitled to a share of the food.

I arrived in the first hamlet early in the afternoon, while the women were still cooking the food. The men were sorting the valuables that they had acquired, pairing each bracelet and necklace with another of exactly the same size, so that debts would be repaid with perfect accuracy. The Molima prefer this scrupulous ex-

The crew of the visiting Kukuya canoe struggle to subdue a large pig they have been given

Food is loaded on the Kukuya plank canoe and a small dugout that has accompanied it to help carry the gifts

The laden canoe starts home to Kukuya, the mountains dimly visible in the distance.

Women set out pots of cooked food for a mortuary feast similar to those given for new canoes. The woman at the right designates the recipients and the boy, her grandnephew, calls their names.

change to the sharp practice of neighboring tribes, such as the Dobuans, who try to obtain goods by false promises.

When the food was ready, a deputy of the canoe owner began to distribute the pots. Important men in Molima are inclined to leave such tasks to others. With the name of each recipient, the deputy mentioned his contribution, if any, to the making or display of the canoe. Part of the food was given to the helpers, and the rest to the matrilineal kin of the dead man in whose name the canoe was made. The latter, in return, lifted the food tabus which the other kin of the dead, including the canoe owner, had been observing as a sign of mourning. Because I was moving from hamlet to hamlet that day, I saw the rite only once. It was typically Molima in its simplicity: a woman of the matrilineal kin walked through the hamlet and waved a cooked yam in front of the people sitting there. They apparently paid no attention, but in fact knew that they could now eat freely of all foods. This seemingly casual act was the final step in a long and elaborate series of exchanges between the matrilineal and the other kin of the dead. These exchanges begin at the funeral and continue for years through several mortuary feasts, at which the matrilineal kin, who do not mourn but perform duties such as burying the corpse, gradually release the other kin from mourning restrictions in exchange for being feasted.

By constructing a canoe and taking it to visit other villages, a man not only honors his dead kinsman but enhances his own reputation, since the resulting feast is vastly superior to an ordinary one. Afterwards he can continue to demonstrate his superior qualities as both a leader and a family man, because he now owns a canoe which serves the whole community and will eventually be inherited by his son, who can use it to emulate his father. As long as the Molima retain their traditional system of values, plank canoes will continue to be an important feature of their culture.

THE AUTHORS

BRANDON BARRINGER ("Finding a Phoenician Colony"), Treasurer and Director of the Curtis Publishing Company, has been a member of the Board of Managers of the Museum since 1936. He has organized and sponsored several local Pennsylvania expeditions; and in 1954 he conducted an archaeological survey in northern Ireland in an effort to trace the prehistoric earthworks there, particularly the Black Pig's Dyke. His account of that expedition appears in the *University Museum Bulletin* for March 1955. He planned, organized, and led the expedition to Leptis Magna.

THERESA HOWARD CARTER ("Finding a Phoenician Colony") obtained her M.A. in Anthropology from the University of Pennsylvania; she was Student Assistant in the Section of Ethnology in the Museum from 1953 to 1955. From 1957 to 1959 she was a Fellow in Classical and Near Eastern Archaeology at Bryn Mawr College, where she is completing her Ph.D. dissertation on the subject of the Kassite Period in Mesopotamia. Her field experience, prior to the work in Libya on which she reports here, included two seasons with the Museum's expedition to Gordion.

DAVID CROWNOVER ("A Pair of Twins") was graduated from the University of Pennsylvania in 1952 where he did three years of graduate work in the Department of the History of Art. He has been associated with the Museum since 1954, first as an assistant in the Mediterranean Section, then as Manager of Exhibitions. He is particularly interested in the Tribal Art of West Africa and the Congo.

ALFRED BENDINER ("An Archaeologist's Sketchbook"), Master of Architecture, U. of P. 1927, and Fellow of the American Institute of Architects, has had a distinguished and varied career with his drawing tablet. He is head of his own achitectural firm in Philadelphia, is muralist, caricaturist, and illustrator, and was staff artist on the Museum's expeditions to Tepe Gawra and Khafaje in Iraq. His work has been shown in art exhibitions both in this country and Europe. He is the author and artist of *Music to My Eyes*, a book of caricatures and comments on people prominent in the field of music.

M. E. L. MALLOWAN ("Sir Leonard Woolley") was assistant on the Joint Expedition to Ur from 1925 to 1930 and on the British Museum Expedition to Nineveh in 1931-32. He directed excavations on behalf of the British Museum and the British School of Archaeology at Arpachiyah in Iran in 1933; at Chagar Bazar, Syria in 1934-36; and at various sites in the Balikh Valley in 1937-38. From 1939 to 1945 he served in RAFVR with the rank of Wing Commander. Since 1947, he has been Professor of Western Asiatic Archaeology at the University of London, also Director of the British School of Archaeology in Iraq. He has excavated in the Zab Valley in 1948 and 1955 and from 1949 onwards at Nimrud. He is the author of numerous books and articles having to do with the archaeology of the Near East; he is editor of the Near Eastern and Western Asiatic series of Penguin books and has been editor of *Iraq* since 1948. In 1957 the Museum awarded him the Lucy Wharton Drexel Medal for achievement in archaeology.

JOSEPH A. BARONE ("Patterns in Music") has been Director of Musical Programs at the University Museum since 1944 and for ten years served on the faculty in the Music Department at the University of Pennsylvania. He is director of the Bryn Mawr Conservatory of Music and conductor of the Syracuse Symphony; and is a member of the American Musicological Society and of the Society for Ethnomusicology. He has been an editor of *Who is Who in Music* and has just completed a book on the musical instruments in the Philadelphia Commercial Museum.

ANN CHOWNING ("Canoe Making among the Molima of Fergusson Island") is Assistant Professor of Anthropology at Barnard College. She obtained her B.A. from Bryn Mawr, her Ph.D. from the University of Pennsylvania in 1958. From July 1957 to August 1958 she lived among the Molima, studying general ethnology and concentrating on social organization, the project financed by a National Science Foundation Postdoctoral Fellowship, with the University Museum acting as sponsoring institution. Her other field experience includes seasons of archaeological work in Indiana and Oklahoma, Yucatan and Guatemala, and ethnological work with the Umatilla Indians of Oregon and the Lakalai of New Britain.

SUGGESTED READING

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CREDITS

PHOTOGRAPHS

Page 2, photograph by Dale Morrison. Page 29, photograph of Dr. Wasantha W. Singh by Lux Elsner. Page 12, by William Bertolet. Page 4, bottom, photograph by Alfred W. Cook, in CITIES IN THE SAND, University of Pennsylvania Press, 1957.

MAPS AND CHARTS: Drawn by A. Eric Parkinson.

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